

Appendix 6-F *Groundwater Quality Blank Results,
2017 to 2019 Baseline Data*

Appendix 6-F. Groundwater Quality Blank Results, 2017 to 2019 Baseline Data

			Sample ID	FIELD BLANK	TRAVEL BLANK	FIELD BLANK	TRAVEL BLANK	FIELD BLANK	TRIP BLANK	FIELD BLANK	TRIP BLANK	FIELD BLANK	TRAVEL BLANK	TRIP BLANK	FIELD BLANK
			Date Sampled	16-Aug-2017	16-Aug-2017	29-Sep-2017	29-Sep-2017	18-Jan-2018	18-Jan-2018	3-Apr-2018	3-Apr-2018	21-Jun-2018	21-Jun-2018	11-Sep-2018	11-Sep-2018
			Time Sampled	n/a	n/a	n/a	n/a	12:00	12:00	0:00	0:00	0:00	0:00	0:00	0:00
			ALS Sample ID	L1977808-6	L1977808-5	L2000339-8	L2000339-7	L2047836-3	L2047836-4	L2078247-10	L2078247-11	L2117455-6	L2117455-7	L2163047-7	L2163047-8
	Units	Detection Limits ¹	BCWQG FAL												
			Approved Guidelines	<u>Working Guidelines</u>											
Physical Tests															
Colour	CU	5	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (lab)	µS/cm	2.0	n.g.	n.g.	<2.0	<2.0	<2.0	<2.0	<2.0	2.3	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO ₃)-Total	mg/L	0.5	n.g.	n.g.			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
pH	pH	0.10	6.5-9	n.g.	5.20	5.23	6.27	6.63	5.58	5.6	6.86	5.48	5.41	5.43	5.35
Total Suspended Solids	mg/L	3.0	n.g.	n.g.	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids ²	mg/L	10.0	n.g.	n.g.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity	NTU	0.10	50	n.g.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Alkalinity and Acidity															
Acidity (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	2.0	1.9	2.0	-	-	-	1.6	1.5	1.5	1.5	2.1
Alkalinity, Bicarbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Carbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anions and Nitrogen															
Ammonia, Total (as N)	mg/L	0.0050	0.681-28.7 ^(pH, T)	n.g.	<0.0050	<0.0050	<0.0050	0.0136	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromide (Br)	mg/L	0.050	n.g.	n.g.	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.50	600	n.g.	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.020	0.4-2.0 ^(H)	n.g.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	mg/L	0.0050	32.8	n.g.	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.0010	0.06 ^(cl)	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Nitrogen	mg/L	0.050	n.g.	n.g.	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Orthophosphate-Dissolved (as P)	mg/L	0.001	n.g.	n.g.	-	-	<0.0010	<0.0010	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total Dissolved	mg/L	0.0020	n.g.	n.g.	<0.0020	<0.0020	-	-	-	-	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L	0.0020	n.g.	n.g.	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Sulfate (SO ₄)	mg/L	0.50	128 - 429 ^(H)	n.g.	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Inorganic/Organic Carbon															
Dissolved Organic Carbon	mg/L	0.5	n.g.	n.g.	<0.50	<0.50	<0.50	-		-	-	-	-	-	-
Total Organic Carbon	mg/L	0.50	n.g.	n.g.	<0.50	<0.50	0.87	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Metals															
Aluminum (Al)-Total	mg/L	0.0050	n.g.	n.g.	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony (Sb)-Total	mg/L	0.00050	n.g.	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic (As)-Total	mg/L	0.00050	0.005	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Barium (Ba)-Total	mg/L	0.020	n.g.	5	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Beryllium (Be)-Total	mg/L	0.0010	n.g.	0.0053	<0.0050	<0.0050	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Total	mg/L	0.10	1.2	n.g.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium (Cd)-Total	mg/L	0.000010	n.g.	n.g.	<0.000050	<0.000050	<0.000050	<0.000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000052	<0.0000050	<0.0000050
Calcium (Ca)-Total	mg/L	0.10	n.g.	n.g.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium (Cr)-Total	mg/L	0.0010	n.g.	0.001 or 0.0089 ³	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	0.00030	0.11	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)-Total	mg/L	0.0010	0.002 - 0.026 ^(H)	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron (Fe)-Total	mg/L	0.030	1	n.g.	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)-Total	mg/L	0.00050	0.003 - 0.33 ^(H)	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Lithium (Li)-Total	mg/L	0.0050	n.g.	0.87	<0.050	<0.050	<0.050	<0.050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Total	mg/L	0.10	n.g.	n.g.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Manganese (Mn)-Total	mg/L	0.00030	0.80-3.80 ^(H)	n.g.	<0.010	<0.010	<0.010	<0.010	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Mercury (Hg)-Total	mg/L	0.000010	n.g.	n.g.	<0.000020	<0.000020	<0.000020	<0.000020	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.0010	2	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel (Ni)-Total	mg/L	0.0010	n.g.	0.025 - 0.180 ^(H)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

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		Detection Limits ¹	BCWQG FAL													
Units			Approved Guidelines	<u>Working Guidelines</u>												
Potassium (K)-Total	mg/L	2.0	n.g.	373-432	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium (Se)-Total	mg/L	0.00010	0.002	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver (Ag)-Total	mg/L	0.000020	0.0001-0.003 ^(H)	n.g.	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	2.0	n.g.	n.g.	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium (Tl)-Total	mg/L	0.00020	n.g.	0.0017 - 0.0063 ⁴	<0.00020	<0.00020	<0.00020	<0.00020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	0.00050	n.g.	n.g.	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium (Ti)-Total	mg/L	0.010	n.g.	2	<0.050	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)-Total	mg/L	0.00020	n.g.	0.3	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Vanadium (V)-Total	mg/L	0.0010	n.g.	n.g.	<0.030	<0.030	<0.030	<0.030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	0.0050	0.033-0.265 ^(H)	n.g.	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals																
Aluminum (Al)-Dissolved	mg/L	0.0050	0.10 ^{(pH)(2)}	n.g.	-	-	<0.010	-	-	-	-	-	-	-	-	-
Antimony (Sb)-Dissolved	mg/L	0.00050	n.g.	n.g.	-	-	<0.00050	-	-	-	-	-	-	-	-	-
Arsenic (As)-Dissolved	mg/L	0.00050	n.g.	n.g.	-	-	<0.0010	-	-	-	-	-	-	-	-	-
Barium (Ba)-Dissolved	mg/L	0.020	n.g.	n.g.	-	-	<0.020	-	-	-	-	-	-	-	-	-
Beryllium (Be)-Dissolved	mg/L	0.0010	n.g.	n.g.	-	-	<0.0050	-	-	-	-	-	-	-	-	-
Boron (B)-Dissolved	mg/L	0.10	n.g.	n.g.	-	-	<0.10	-	-	-	-	-	-	-	-	-
Cadmium (Cd)-Dissolved	mg/L	0.000005	0.0000176-0.000457 ^{(H)(5)}	n.g.	-	-	<0.000050	-	-	-	-	-	-	-	-	-
Calcium (Ca)-Dissolved	mg/L	0.10	n.g.	n.g.	-	-	<0.10	-	-	-	-	-	-	-	-	-
Chromium (Cr)-Dissolved	mg/L	0.0010	n.g.	n.g.	-	-	<0.00050	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Dissolved	mg/L	0.00030	n.g.	n.g.	-	-	<0.00050	-	-	-	-	-	-	-	-	-
Copper (Cu)-Dissolved	mg/L	0.0010	n.g.	n.g.	-	-	<0.0010	-	-	-	-	-	-	-	-	-
Iron (Fe)-Dissolved	mg/L	0.030	0.35	n.g.	-	-	<0.030	-	-	-	-	-	-	-	-	-
Lead (Pb)-Dissolved	mg/L	0.00050	n.g.	n.g.	-	-	<0.0010	-	-	-	-	-	-	-	-	-
Lithium (Li)-Dissolved	mg/L	0.0050	n.g.	n.g.	-	-	<0.050	-	-	-	-	-	-	-	-	-
Magnesium (Mg)-Dissolved	mg/L	0.10	n.g.	n.g.	-	-	<0.10	-	-	-	-	-	-	-	-	-
Manganese (Mn)-Dissolved	mg/L	0.00030	n.g.	n.g.	-	-	<0.010	-	-	-	-	-	-	-	-	-
Mercury (Hg)-Dissolved	mg/L	0.000010	n.g.	n.g.	-	-	<0.00020	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)-Dissolved	mg/L	0.0010	n.g.	n.g.	-	-	<0.0010	-	-	-	-	-	-	-	-	-
Nickel (Ni)-Dissolved	mg/L	0.0010	n.g.	n.g.	-	-	<0.0050	-	-	-	-	-	-	-	-	-
Potassium (K)-Dissolved	mg/L	2.0	n.g.	n.g.	-	-	<2.0	-	-	-	-	-	-	-	-	-
Selenium (Se)-Dissolved	mg/L	0.00010	n.g.	n.g.	-	-	<0.0010	-	-	-	-	-	-	-	-	-
Silver (Ag)-Dissolved	mg/L	0.000020	n.g.	n.g.	-	-	<0.000050	-	-	-	-	-	-	-	-	-
Sodium (Na)-Dissolved	mg/L	2.0	n.g.	n.g.	-	-	<2.0	-	-	-	-	-	-	-	-	-
Thallium (Tl)-Dissolved	mg/L	0.00020	n.g.	n.g.	-	-	<0.00020	-	-	-	-	-	-	-	-	-
Tin (Sn)-Dissolved	mg/L	0.00050	n.g.	n.g.	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)-Dissolved	mg/L	0.010	n.g.	n.g.	-	-	<0.050	-	-	-	-	-	-	-	-	-
Uranium (U)-Dissolved	mg/L	0.00020	n.g.	n.g.	-	-	<0.00020	-	-	-	-	-	-	-	-	-
Vanadium (V)-Dissolved	mg/L	0.0010	n.g.	n.g.	-	-	<0.030	-	-	-	-	-	-	-	-	-
Zinc (Zn)-Dissolved	mg/L	0.0050	n.g.	n.g.	-	-	<0.0050	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons (Water)																
Acenaphthene	mg/L	0.000010	0.006	n.g	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	mg/L	0.000010	n.g.	n.g	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	0.000010	0.003	n.g	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	0.000010	0.004	n.g	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	0.000010	0.0001	n.g	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.000005	0.00001	n.g	-	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo(b&j)fluoranthene	mg/L	0.000010	n.g.	n.g	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(b+j+k)fluoranthene	mg/L	0.000015	n.g.	n.g	-	-	-	-	-	-	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015

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			Units	Detection Limits ¹											
Benzo(g,h,i)perylene	mg/L	0.000010	n.g.	n.g	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(k)fluoranthene	mg/L	0.000010	n.g.	n.g	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	mg/L	0.000010	n.g.	n.g	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz(a,h)anthracene	mg/L	0.000005	n.g.	n.g	-	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	mg/L	0.000010	0.004	n.g	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.000010	0.012	n.g	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno(1,2,3-c,d)pyrene	mg/L	0.000010	n.g.	n.g	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
1-Methylnaphthalene	mg/L	0.000050	n.g.	n.g	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	mg/L	0.000050	n.g.	n.g	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Naphthalene	mg/L	0.000050	0.001	n.g	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	0.000020	0.0003	n.g	-	-	-	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	0.000010	n.g.	n.g	-	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	0.000050	n.g.	0.0034	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050

Notes:

¹ Lowest reported detection limit listed

² Dissolved Aluminum is pH dependent. Maximum concentration is 0.10 mg/L when the pH is greater than or equal to 6.5

³ Chromium (VI) maximum is 1.0 µg/l and Chromium (III) maximum is 8.9 µg/L

⁴ Thallium - 1.7 µg/L human health, consumption of water + organism and 6.3 µg/L human health, consumption of organism only

⁵ Dissolved Cadmium is hardness dependent. Lower bound for long term average guideline exposure is 0.0000176 mg/L and the upper bound is 0.000457 mg/L.

(-) Not measured

BCWQG FAL = BC Water Quality Guidelines for Freshwater Aquatic Life

(Cl) Chloride dependent guideline

(H) Hardness dependent guideline

(pH) pH dependent guideline

(T) Temperature dependent guideline

n.g. = No guideline

Appendix 6-F. Groundwater Quality Blank Results, 2017 to 2019 Baseline Data

			Sample ID	FIELD BLANK	TRAVEL BLANK	FIELD BLANK	TRAVEL BLANK	TRAVEL BLANK	TRAVEL BLANK	FIELD BLANK	TRAVEL BLANK	FIELD BLANK
			Date Sampled	5-Jan-2019	8-Jan-2019	1-Apr-19	4-Apr-19	4-Jun-2019	8/29/2019	30-Aug-2019	23-Nov-2019	23-Nov-2019
			Time Sampled	12:00	12:00	n/a	n/a	n/a	n/a	12:00	n/a	12:00
			ALS Sample ID	L2218463-1	L2218463-3	L2254339-7	L2254339-5	L2287158-4	L2339588-2	L2340451-1	L2387382-1	L2387382-5L2387383-3
			BCWQG FAL									
			Approved Guidelines	<u>Working Guidelines</u>								
Units			Detection Limits ¹									
Physical Tests												
Colour	CU	5	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (lab)	µS/cm	2.0	n.g.	n.g.	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO ₃)-Total	mg/L	0.5	n.g.	n.g.	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
pH	pH	0.10	6.5-9	n.g.	5.9	5.44	6.05	6.97	5.63	5.61	5.67	5.66
Total Suspended Solids	mg/L	3.0	n.g.	n.g.	<3.0	<3.0	<3.0	<3.0	<3.0	3	<3.0	<3.0
Total Dissolved Solids ²	mg/L	10.0	n.g.	n.g.	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity	NTU	0.10	50	n.g.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Alkalinity and Acidity												
Acidity (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	1.9	<1.0	1.9	1.6	2.2	2.1	1.3	2.3
Alkalinity, Bicarbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.6	<1.0
Alkalinity, Carbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.6	<1.0
Anions and Nitrogen												
Ammonia, Total (as N)	mg/L	0.0050	0.681-28.7 ^(pH, T)	n.g.	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromide (Br)	mg/L	0.050	n.g.	n.g.	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.50	600	n.g.	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.020	0.4-2.0 ^(H)	n.g.	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	mg/L	0.0050	32.8	n.g.	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0119	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.0010	0.06 ^(cl)	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.003	<0.0010	<0.0010
Total Nitrogen	mg/L	0.050	n.g.	n.g.	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Orthophosphate-Dissolved (as P)	mg/L	0.001	n.g.	n.g.	<0.0010	<0.0010	<0.0010		<0.0010	<0.0010	-	<0.0010
Phosphorus (P)-Total Dissolved	mg/L	0.0020	n.g.	n.g.	<0.0020	-	<0.0020	<0.0020	<0.0020	<0.0020	-	<0.0020
Phosphorus (P)-Total	mg/L	0.0020	n.g.	n.g.	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Sulfate (SO ₄)	mg/L	0.50	128 - 429 ^(H)	n.g.	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Inorganic/Organic Carbon												
Dissolved Organic Carbon	mg/L	0.5	n.g.	n.g.	<0.50	-	-	-	-	<0.50	-	<0.50
Total Organic Carbon	mg/L	0.50	n.g.	n.g.	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Metals												
Aluminum (Al)-Total	mg/L	0.0050	n.g.	n.g.	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony (Sb)-Total	mg/L	0.00050	n.g.	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic (As)-Total	mg/L	0.00050	0.005	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Barium (Ba)-Total	mg/L	0.020	n.g.	5	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Beryllium (Be)-Total	mg/L	0.0010	n.g.	0.0053	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Total	mg/L	0.10	1.2	n.g.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium (Cd)-Total	mg/L	0.000010	n.g.	n.g.	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Total	mg/L	0.10	n.g.	n.g.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium (Cr)-Total	mg/L	0.0010	n.g.	0.001 or 0.0089 ³	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	0.00030	0.11	n.g.	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)-Total	mg/L	0.0010	0.002 - 0.026 ^(H)	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Iron (Fe)-Total	mg/L	0.030	1	n.g.	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)-Total	mg/L	0.00050	0.003 - 0.33 ^(H)	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Lithium (Li)-Total	mg/L	0.0050	n.g.	0.87	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Total	mg/L	0.10	n.g.	n.g.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Manganese (Mn)-Total	mg/L	0.00030	0.80-3.80 ^(H)	n.g.	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Mercury (Hg)-Total	mg/L	0.000010	n.g.	n.g.	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.0010	2	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel (Ni)-Total	mg/L	0.0010	n.g.	0.025 - 0.180 ^(H)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Appendix 6-F. Groundwater Quality Blank Results, 2017 to 2019 Baseline Data

			Sample ID	FIELD BLANK	TRAVEL BLANK	FIELD BLANK	TRAVEL BLANK	TRAVEL BLANK	TRAVEL BLANK	FIELD BLANK	TRAVEL BLANK	FIELD BLANK
			Date Sampled	5-Jan-2019	8-Jan-2019	1-Apr-19	4-Apr-19	4-Jun-2019	8/29/2019	30-Aug-2019	23-Nov-2019	23-Nov-2019
			Time Sampled	12:00	12:00	n/a	n/a	n/a	n/a	12:00	n/a	12:00
			ALS Sample ID	L2218463-1	L2218463-3	L2254339-7	L2254339-5	L2287158-4	L2339588-2	L2340451-1	L2387382-1	L2387382-5L2387383-3
	Units	Detection Limits ¹	BCWQG FAL									
			Approved Guidelines	<u>Working Guidelines</u>								
Potassium (K)-Total	mg/L	2.0	n.g.	373-432	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium (Se)-Total	mg/L	0.00010	0.002	n.g.	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver (Ag)-Total	mg/L	0.000020	0.0001-0.003 ^(H)	n.g.	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	2.0	n.g.	n.g.	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium (Tl)-Total	mg/L	0.00020	n.g.	0.0017 - 0.0063 ⁴	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	0.00050	n.g.	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium (Ti)-Total	mg/L	0.010	n.g.	2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)-Total	mg/L	0.00020	n.g.	0.3	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Vanadium (V)-Total	mg/L	0.0010	n.g.	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	0.0050	0.033-0.265 ^(H)	n.g.	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	0.0050	0.10 ^{(pH)(2)}	n.g.	<0.0050	-	-	-	-	<0.0050	-	<0.0050
Antimony (Sb)-Dissolved	mg/L	0.00050	n.g.	n.g.	<0.00050	-	-	-	-	<0.00050	-	<0.00050
Arsenic (As)-Dissolved	mg/L	0.00050	n.g.	n.g.	<0.00050	-	-	-	-	<0.00050	-	<0.00050
Barium (Ba)-Dissolved	mg/L	0.020	n.g.	n.g.	<0.020	-	-	-	-	<0.020	-	<0.020
Beryllium (Be)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.00010	-	-	-	-	<0.00010	-	<0.00010
Boron (B)-Dissolved	mg/L	0.10	n.g.	n.g.	<0.10	-	-	-	-	<0.10	-	<0.10
Cadmium (Cd)-Dissolved	mg/L	0.000005	0.0000176-0.000457 ^{(H)(5)}	n.g.	<0.0000050	-	-	-	-	<0.0000050	-	0.0000064
Calcium (Ca)-Dissolved	mg/L	0.10	n.g.	n.g.	<0.10	-	-	-	-	<0.10	-	<0.10
Chromium (Cr)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010	-	-	-	-	<0.0010	-	<0.0010
Cobalt (Co)-Dissolved	mg/L	0.00030	n.g.	n.g.	<0.00030	-	-	-	-	<0.00030	-	<0.00030
Copper (Cu)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010	-	-	-	-	<0.0010	-	<0.0010
Iron (Fe)-Dissolved	mg/L	0.030	0.35	n.g.	<0.030	-	-	-	-	<0.030	-	<0.030
Lead (Pb)-Dissolved	mg/L	0.00050	n.g.	n.g.	<0.00050	-	-	-	-	<0.00050	-	<0.00050
Lithium (Li)-Dissolved	mg/L	0.0050	n.g.	n.g.	<0.0010	-	-	-	-	<0.0010	-	<0.0010
Magnesium (Mg)-Dissolved	mg/L	0.10	n.g.	n.g.	<0.10	-	-	-	-	<0.10	-	<0.10
Manganese (Mn)-Dissolved	mg/L	0.00030	n.g.	n.g.	<0.00010	-	-	-	-	<0.00010	-	<0.00010
Mercury (Hg)-Dissolved	mg/L	0.000010	n.g.	n.g.	<0.0000050	-	-	-	-	<0.0000050	-	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010	-	-	-	-	<0.0010	-	<0.0010
Nickel (Ni)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010	-	-	-	-	<0.0010	-	<0.0010
Potassium (K)-Dissolved	mg/L	2.0	n.g.	n.g.	<2.0	-	-	-	-	<2.0	-	<2.0
Selenium (Se)-Dissolved	mg/L	0.00010	n.g.	n.g.	<0.000050	-	-	-	-	<0.000050	-	<0.000050
Silver (Ag)-Dissolved	mg/L	0.000020	n.g.	n.g.	<0.000020	-	-	-	-	<0.000020	-	<0.000020
Sodium (Na)-Dissolved	mg/L	2.0	n.g.	n.g.	<2.0	-	-	-	-	<2.0	-	<2.0
Thallium (Tl)-Dissolved	mg/L	0.00020	n.g.	n.g.	<0.00020	-	-	-	-	<0.00020	-	<0.00020
Tin (Sn)-Dissolved	mg/L	0.00050	n.g.	n.g.	<0.00050	-	-	-	-	<0.00050	-	<0.00050
Titanium (Ti)-Dissolved	mg/L	0.010	n.g.	n.g.	<0.010	-	-	-	-	<0.010	-	<0.010
Uranium (U)-Dissolved	mg/L	0.00020	n.g.	n.g.	<0.00020	-	-	-	-	<0.00020	-	<0.00020
Vanadium (V)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.00050	-	-	-	-	<0.00050	-	<0.00050
Zinc (Zn)-Dissolved	mg/L	0.0050	n.g.	n.g.	<0.0050	-	-	-	-	<0.0050	-	<0.0050
Polycyclic Aromatic Hydrocarbons (Water)												
Acenaphthene	mg/L	0.000010	0.006	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	mg/L	0.000010	n.g.	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	0.000010	0.003	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	0.000010	0.004	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	0.000010	0.0001	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.000005	0.00001	n.g	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo(b&j)fluoranthene	mg/L	0.000010	n.g.	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(b+j+k)fluoranthene	mg/L	0.000015	n.g.	n.g	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015

Appendix 6-F. Groundwater Quality Blank Results, 2017 to 2019 Baseline Data

			Sample ID	FIELD BLANK	TRAVEL BLANK	FIELD BLANK	TRAVEL BLANK	TRAVEL BLANK	TRAVEL BLANK	FIELD BLANK	TRAVEL BLANK	FIELD BLANK
			Date Sampled	5-Jan-2019	8-Jan-2019	1-Apr-19	4-Apr-19	4-Jun-2019	8/29/2019	30-Aug-2019	23-Nov-2019	23-Nov-2019
			Time Sampled	12:00	12:00	n/a	n/a	n/a	n/a	12:00	n/a	12:00
			ALS Sample ID	L2218463-1	L2218463-3	L2254339-7	L2254339-5	L2287158-4	L2339588-2	L2340451-1	L2387382-1	L2387382-5L2387383-3
		BCWQG FAL										
		Detection Limits ¹	Approved Guidelines									
Units				<u>Working Guidelines</u>								
Benzo(g,h,i)perylene	mg/L	0.000010	n.g.	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(k)fluoranthene	mg/L	0.000010	n.g.	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	mg/L	0.000010	n.g.	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz(a,h)anthracene	mg/L	0.000005	n.g.	n.g	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	mg/L	0.000010	0.004	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.000010	0.012	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno(1,2,3-c,d)pyrene	mg/L	0.000010	n.g.	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
1-Methylnaphthalene	mg/L	0.000050	n.g.	n.g	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	mg/L	0.000050	n.g.	n.g	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Naphthalene	mg/L	0.000050	0.001	n.g	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	mg/L	0.000020	0.0003	n.g	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	0.000010	n.g.	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	0.000050	n.g.	0.0034	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050

Notes:

¹ Lowest reported detection limit listed

² Dissolved Aluminum is pH dependent. Maximum concentration is 0.10 mg/L when the pH is greater than or equal to 6.5

³ Chromium (VI) maximum is 1.0 µg/l and Chromium (III) maximum is 8.9 µg/L

⁴ Thallium - 1.7 µg/L human health, consumption of water + organism and 6.3 µg/L human health, consumption of organism only

⁵ Dissolved Cadmium is hardness dependent. Lower bound for long term average guideline exposure is 0.0000176 mg/L and the upper bound is 0.000457 mg/L.

(-) Not measured

BCWQG FAL = BC Water Quality Guidelines for Freshwater Aquatic Life

(Cl) Chloride dependent guideline

(H) Hardness dependent guideline

(pH) pH dependent guideline

(T) Temperature dependent guideline

n.g. = No guideline

Appendix 6-G *Groundwater Analytical Results, 18-01D (ARD 2),
March 2019*

Appendix 6-G. Groundwater Analytical Results, 18-01D (ARD 2), March 2019

				Well ID	18-01D
				Sample ID	ARD2
			BCWQG FAL		BDR
	Detection		Approved	Working	
	Units	Limits ¹	Guidelines	Guidelines	
Date Sampled					3/6/2019
ALS Sample ID					L2245111-1
Charge Balance (%)					-5.6%
Physical Tests					
Colour	CU	5	-	-	<5.0
Conductivity (lab)	µS/cm	2.0	n.g.	n.g.	1500
Specific Conductivity (field)	µS/cm	1.0	n.g.	n.g.	1536
Hardness (as CaCO ₃)-Total	mg/L	0.5	n.g.	n.g.	47.2
pH (lab)	pH	0.10	6.5-9	n.g.	8.32
pH (field)	pH	0.10	6.5-9	n.g.	8.27
Total Suspended Solids	mg/L	3.0	n.g.	n.g.	204
Total Dissolved Solids ²	mg/L	10.0	n.g.	n.g.	1020
Turbidity (lab)	NTU	0.10	50	n.g.	45.3
Turbidity (field)	NTU	0.10	50	n.g.	-
Alkalinity and Acidity					
Acidity (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0
Alkalinity, Bicarbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	844
Alkalinity, Carbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	6.8
Alkalinity, Hydroxide (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0
Alkalinity, Total (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	850
Anions and Nitrogen					
Ammonia, Total (as N)	mg/L	0.0050	0.681-28.7 (pH, T)	n.g.	0.64
Bromide (Br)	mg/L	0.050	n.g.	n.g.	<0.25
Chloride (Cl)	mg/L	0.50	600	n.g.	21.5
Fluoride (F)	mg/L	0.020	0.4-2.0 (H)	n.g.	1.35
Nitrate (as N)	mg/L	0.0050	32.8	n.g.	<0.025
Nitrite (as N)	mg/L	0.0010	0.06 (cl)	n.g.	<0.0050
Total Nitrogen	mg/L	0.050	n.g.	n.g.	0.814
Orthophosphate-Dissolved (as P)	mg/L	0.001	n.g.	n.g.	<0.0010
Phosphorus (P)-Total	mg/L	0.0020	n.g.	n.g.	0.107
Sulfate (SO ₄)	mg/L	0.50	128 - 429 (H)	n.g.	11.6
Inorganic/Organic Carbon					
Total Organic Carbon	mg/L	0.50	n.g.	n.g.	4.78
Total Metals					
Aluminum (Al)-Total	mg/L	0.0050	n.g.	n.g.	2.68
Antimony (Sb)-Total	mg/L	0.00050	n.g.	n.g.	<0.00050
Arsenic (As)-Total	mg/L	0.00050	0.005	n.g.	0.00273
Barium (Ba)-Total	mg/L	0.020	n.g.	5	0.522
Beryllium (Be)-Total	mg/L	0.0010	n.g.	0.0053	0.00032
Boron (B)-Total	mg/L	0.10	1.2	n.g.	0.14
Cadmium (Cd)-Total	mg/L	0.000010	n.g.	n.g.	0.0000347
Calcium (Ca)-Total	mg/L	0.10	n.g.	n.g.	12.2
Chromium (Cr)-Total	mg/L	0.0010	n.g.	0.001 or 0.0089 ³	0.0017
Cobalt (Co)-Total	mg/L	0.00030	0.11	n.g.	0.00037
Copper (Cu)-Total	mg/L	0.0010	0.002 - 0.026 (H)	n.g.	0.0017
Iron (Fe)-Total	mg/L	0.030	1	n.g.	1.5
Lead (Pb)-Total	mg/L	0.00050	0.003 - 0.33 (H)	n.g.	0.00633
Lithium (Li)-Total	mg/L	0.0050	n.g.	0.87	0.0565
Magnesium (Mg)-Total	mg/L	0.10	n.g.	n.g.	2.80
Manganese (Mn)-Total	mg/L	0.00030	0.80-3.80 (H)	n.g.	0.0381
Mercury (Hg)-Total	mg/L	0.000010	n.g.	n.g.	<0.000050
Molybdenum (Mo)-Total	mg/L	0.0010	2	n.g.	0.0039

Appendix 6-G. Groundwater Analytical Results, 18-01D (ARD 2), March 2019

Well ID					18-01D
Sample ID					ARD2
					BDR
			BCWQG FAL		
			Approved	Working	
	Units	Detection Limits ¹	Guidelines	Guidelines	
Nickel (Ni)-Total	mg/L	0.0010	n.g.	0.025 - 0.180 ^(H)	0.0017
Potassium (K)-Total	mg/L	2.0	n.g.	373-432	2.6
Selenium (Se)-Total	mg/L	0.00010	0.002	n.g.	0.000066
Silver (Ag)-Total	mg/L	0.000020	0.0001-0.003 ^(H)	n.g.	0.000068
Sodium (Na)-Total	mg/L	2.0	n.g.	n.g.	348
Thallium (Tl)-Total	mg/L	0.00020	n.g.	0.0017 - 0.0063 ⁴	0.000041
Tin (Sn)-Total	mg/L	0.00050	n.g.	n.g.	0.00073
Titanium (Ti)-Total	mg/L	0.010	n.g.	2	0.010
Uranium (U)-Total	mg/L	0.00020	n.g.	0.3	0.00322
Vanadium (V)-Total	mg/L	0.0010	n.g.	n.g.	0.0006
Zinc (Zn)-Total	mg/L	0.0050	0.033-0.265 ^(H)	n.g.	0.0100
Dissolved Metals					
Aluminum (Al)-Dissolved	mg/L	0.0050	0.10 ^{(pH)(2)}	n.g.	3.15
Antimony (Sb)-Dissolved	mg/L	0.00050	n.g.	n.g.	<0.00050
Arsenic (As)-Dissolved	mg/L	0.00050	n.g.	n.g.	0.00172
Barium (Ba)-Dissolved	mg/L	0.020	n.g.	n.g.	0.237
Beryllium (Be)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.00010
Boron (B)-Dissolved	mg/L	0.10	n.g.	n.g.	0.11
Cadmium (Cd)-Dissolved	mg/L	0.000010	0.0000176-0.000457 ^{(H)(5)}	n.g.	0.0000096
Calcium (Ca)-Dissolved	mg/L	0.10	n.g.	n.g.	14.1
Chromium (Cr)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010
Cobalt (Co)-Dissolved	mg/L	0.00030	n.g.	n.g.	<0.00030
Copper (Cu)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010
Iron (Fe)-Dissolved	mg/L	0.030	0.35	n.g.	0.848
Lead (Pb)-Dissolved	mg/L	0.00050	n.g.	n.g.	0.00118
Lithium (Li)-Dissolved	mg/L	0.0050	n.g.	n.g.	0.046
Magnesium (Mg)-Dissolved	mg/L	0.10	n.g.	n.g.	2.89
Manganese (Mn)-Dissolved	mg/L	0.00030	n.g.	n.g.	0.0228
Mercury (Hg)-Dissolved	mg/L	0.000010	n.g.	n.g.	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.0010	n.g.	n.g.	0.0086
Nickel (Ni)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010
Potassium (K)-Dissolved	mg/L	2.0	n.g.	n.g.	3.7
Selenium (Se)-Dissolved	mg/L	0.00010	n.g.	n.g.	0.000302
Silver (Ag)-Dissolved	mg/L	0.000020	n.g.	n.g.	<0.000020
Sodium (Na)-Dissolved	mg/L	2.0	n.g.	n.g.	283
Thallium (Tl)-Dissolved	mg/L	0.00020	n.g.	n.g.	<0.00020
Tin (Sn)-Dissolved	mg/L	0.00050	n.g.	n.g.	0.00071
Titanium (Ti)-Dissolved	mg/L	0.010	n.g.	n.g.	0.023
Uranium (U)-Dissolved	mg/L	0.00020	n.g.	n.g.	0.00129
Vanadium (V)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.00050
Zinc (Zn)-Dissolved	mg/L	0.0050	n.g.	n.g.	<0.0050
Polycyclic Aromatic Hydrocarbons (Water)					
Acenaphthene	mg/L	0.000010	0.006	n.g	<0.000010
Acenaphthylene	mg/L	0.000010	n.g.	n.g	<0.000010
Acridine	mg/L	0.000010	0.003	n.g	<0.000010
Anthracene	mg/L	0.000010	0.004	n.g	<0.000010
Benz(a)anthracene	mg/L	0.000010	0.0001	n.g	<0.000010
Benzo(a)pyrene	mg/L	0.000005	0.00001	n.g	<0.0000050
Benzo(b&j)fluoranthene	mg/L	0.000010	n.g.	n.g	<0.000010
Benzo(b+j+k)fluoranthene	mg/L	0.000015	n.g.	n.g	<0.000015
Benzo(g,h,i)perylene	mg/L	0.000010	n.g.	n.g	<0.000010
Benzo(k)fluoranthene	mg/L	0.000010	n.g.	n.g	<0.000010

Appendix 6-G. Groundwater Analytical Results, 18-01D (ARD 2), March 2019

Well ID					18-01D ARD2 BDR
Sample ID					
			BCWQG FAL		
	Units	Detection Limits ¹	Approved Guidelines	<u>Working Guidelines</u>	
Chrysene	mg/L	0.000010	n.g.	n.g	<0.000010
Dibenz(a,h)anthracene	mg/L	0.000005	n.g.	n.g	<0.0000050
Fluoranthene	mg/L	0.000010	0.004	n.g	<0.000010
Fluorene	mg/L	0.000010	0.012	n.g	<0.000010
Indeno(1,2,3-c,d)pyrene	mg/L	0.000010	n.g.	n.g	<0.000010
1-Methylnaphthalene	mg/L	0.000050	n.g.	n.g	<0.000050
2-Methylnaphthalene	mg/L	0.000050	n.g.	n.g	<0.000050
Naphthalene	mg/L	0.000050	0.001	n.g	<0.000050
Phenanthrene	mg/L	0.000020	0.0003	n.g	<0.000020
Pyrene	mg/L	0.000010	n.g.	n.g	<0.000010
Quinoline	mg/L	0.000050	n.g.	0.0034	<0.000050

Notes:

¹ Lowest reported detection limit listed

² Dissolved Aluminum is pH dependent. Maximum concentration is 0.10 mg/L when the pH is greater than or equal to 6.5

³ Chromium (VI) maximum is 1.0 µg/L and Chromium (III) maximum is 8.9 µg/L

⁴ Thallium - 1.7 µg/L human health, consumption of water + organism and 6.3 µg/L human health, consumption of organism only

⁵ Dissolved Cadmium is hardness dependent. Lower bound for long term average guideline exposure is 0.0000176 mg/L and the upper bound is 0.000457 mg/L.

(-) Not measured

BCWQG FAL = BC Water Quality Guidelines for Freshwater Aquatic Life

(Cl) Chloride dependent guideline

(H) Hardness dependent guideline

(pH) pH dependent guideline

(T) Temperature dependent guideline

n.g. = No guideline

Bold and Shaded Concentration exceeds BCWQG Approved Water Quality Guidelines

Bold and underlined Concentration exceeds BCWQG Working Water Quality Guidelines

Appendix 6-H *Laboratory Certifications of Analysis,
18-01D (ARD2)*



CASSIAR GEOSCIENCE CONSULTING LTD
ATTN: Cody Cameron
10628 Hislop Road
Telkwa BC V0J 2X1

Date Received: 15-MAR-19
Report Date: 03-APR-19 15:39 (MT)
Version: FINAL

Client Phone: 778-378-1716

Certificate of Analysis

Lab Work Order #: L2245111
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 17-663912
Legal Site Desc:

Carla Fuginski
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2245111-1 Water 06-MAR-19 12:00 ARD2	L2245111-2 Water 14-MAR-19 10:30 RAGULA		
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	<5.0	<5.0			
	Conductivity (uS/cm)	1500	425			
	Hardness (as CaCO3) (mg/L)	47.2	202			
	pH (pH)	8.32	8.12			
	Total Suspended Solids (mg/L)	204	<3.0			
	Total Dissolved Solids (mg/L)	1020	244			
	Turbidity (NTU)	45.3	9.38			
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<1.0	2.3			
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	844	206			
	Alkalinity, Carbonate (as CaCO3) (mg/L)	6.8	<1.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0			
	Alkalinity, Total (as CaCO3) (mg/L)	850	206			
	Ammonia, Total (as N) (mg/L)	0.640	0.0238			
	Bromide (Br) (mg/L)	<0.25 ^{DLDS}	<0.050			
	Chloride (Cl) (mg/L)	21.5	1.79			
	Fluoride (F) (mg/L)	1.35	0.078			
	Nitrate (as N) (mg/L)	<0.025 ^{DLDS}	<0.0050			
	Nitrite (as N) (mg/L)	<0.0050 ^{DLDS}	<0.0010			
	Total Nitrogen (mg/L)	0.814	0.051			
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010			
	Phosphorus (P)-Total (mg/L)	0.107	<0.0020			
	Sulfate (SO4) (mg/L)	11.6	32.1			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)		0.89			
	Total Organic Carbon (mg/L)	4.78	0.77			
Total Metals	Aluminum (Al)-Total (mg/L)	2.68	<0.0050			
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050			
	Arsenic (As)-Total (mg/L)	0.00273	0.00059			
	Barium (Ba)-Total (mg/L)	0.522	0.094			
	Beryllium (Be)-Total (mg/L)	0.00032	<0.00010			
	Boron (B)-Total (mg/L)	0.14	<0.10			
	Cadmium (Cd)-Total (mg/L)	0.0000347	0.0000052			
	Calcium (Ca)-Total (mg/L)	12.2	54.6			
	Chromium (Cr)-Total (mg/L)	0.0017	<0.0010			
	Cobalt (Co)-Total (mg/L)	0.00037	<0.00030			
	Copper (Cu)-Total (mg/L)	0.0017	0.0046			
	Iron (Fe)-Total (mg/L)	1.50	0.819			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2245111-1 Water 06-MAR-19 12:00 ARD2	L2245111-2 Water 14-MAR-19 10:30 RAGULA		
Grouping	Analyte					
WATER						
Total Metals	Lead (Pb)-Total (mg/L)	0.00633	0.00104			
	Lithium (Li)-Total (mg/L)	0.0565	0.0035			
	Magnesium (Mg)-Total (mg/L)	2.80	15.9			
	Manganese (Mn)-Total (mg/L)	0.0381	0.209			
	Mercury (Hg)-Total (mg/L)	<0.000050 ^{DLM}	<0.000050			
	Molybdenum (Mo)-Total (mg/L)	0.0039	0.0019			
	Nickel (Ni)-Total (mg/L)	0.0017	<0.0010			
	Potassium (K)-Total (mg/L)	2.6	<2.0			
	Selenium (Se)-Total (mg/L)	0.000066	<0.000050			
	Silver (Ag)-Total (mg/L)	0.000068	<0.000020			
	Sodium (Na)-Total (mg/L)	348	14.0			
	Thallium (Tl)-Total (mg/L)	0.000041	<0.000010			
	Tin (Sn)-Total (mg/L)	0.00073	<0.00050			
	Titanium (Ti)-Total (mg/L)	0.010	<0.010			
	Uranium (U)-Total (mg/L)	0.00322	0.00021			
	Vanadium (V)-Total (mg/L)	0.00060	<0.00050			
	Zinc (Zn)-Total (mg/L)	0.0100	0.0642			
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD			
	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	3.15	<0.0050			
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00050			
	Arsenic (As)-Dissolved (mg/L)	0.00172	<0.00050			
	Barium (Ba)-Dissolved (mg/L)	0.237	0.095			
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010			
	Boron (B)-Dissolved (mg/L)	0.11	<0.10			
	Cadmium (Cd)-Dissolved (mg/L)	0.0000096	<0.000050			
	Calcium (Ca)-Dissolved (mg/L)	14.1	55.6			
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010			
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.00030			
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010			
	Iron (Fe)-Dissolved (mg/L)	0.848	0.336			
	Lead (Pb)-Dissolved (mg/L)	0.00118	<0.00050			
	Lithium (Li)-Dissolved (mg/L)	0.0460	0.0036			
	Magnesium (Mg)-Dissolved (mg/L)	2.89	15.4			
	Manganese (Mn)-Dissolved (mg/L)	0.0228	0.212			
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Dissolved (mg/L)	0.0086 ^{DTMF}	0.0019			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2245111-1 Water 06-MAR-19 12:00 ARD2	L2245111-2 Water 14-MAR-19 10:30 RAGULA		
Grouping	Analyte					
WATER						
Dissolved Metals	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.0010			
	Potassium (K)-Dissolved (mg/L)	3.7	<2.0			
	Selenium (Se)-Dissolved (mg/L)	0.000302 ^{DTSE}	0.000055			
	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020			
	Sodium (Na)-Dissolved (mg/L)	283	15.2			
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020			
	Tin (Sn)-Dissolved (mg/L)	0.00071	<0.00050			
	Titanium (Ti)-Dissolved (mg/L)	0.023	<0.010			
	Uranium (U)-Dissolved (mg/L)	0.00129	0.00022			
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050			
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	0.0298			
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010				
	Acenaphthylene (mg/L)	<0.000010				
	Acridine (mg/L)	<0.000010				
	Anthracene (mg/L)	<0.000010				
	Benz(a)anthracene (mg/L)	<0.000010				
	Benzo(a)pyrene (mg/L)	<0.0000050				
	Benzo(b&j)fluoranthene (mg/L)	<0.000010				
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015				
	Benzo(g,h,i)perylene (mg/L)	<0.000010				
	Benzo(k)fluoranthene (mg/L)	<0.000010				
	Chrysene (mg/L)	<0.000010				
	Dibenz(a,h)anthracene (mg/L)	<0.0000050				
	Fluoranthene (mg/L)	<0.000010				
	Fluorene (mg/L)	<0.000010				
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010				
	1-Methylnaphthalene (mg/L)	<0.000050				
	2-Methylnaphthalene (mg/L)	<0.000050				
	Naphthalene (mg/L)	<0.000050				
	Phenanthrene (mg/L)	<0.000020				
	Pyrene (mg/L)	<0.000010				
	Quinoline (mg/L)	<0.000050				
	Surrogate: Acridine d9 (%)	76.8				
	Surrogate: Chrysene d12 (%)	87.2				
	Surrogate: Naphthalene d8 (%)	80.8				
	Surrogate: Phenanthrene d10 (%)	99.9				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Conductivity	B	L2245111-1, -2
Matrix Spike	Dissolved Organic Carbon	MS-B	L2245111-2
Matrix Spike	Mercury (Hg)-Total	MS-B	L2245111-1, -2
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L2245111-1
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2245111-2
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2245111-1
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2245111-2
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2245111-1
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2245111-2
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2245111-1
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2245111-2
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2245111-1
Matrix Spike	Potassium (K)-Dissolved	MS-B	L2245111-1
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2245111-2
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2245111-1
Matrix Spike	Thallium (Tl)-Dissolved	MS-B	L2245111-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DTMF	Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration.
DTSE	Dissolved Se concentration exceeds total. Positive bias on D-Se suspected due to signal enhancement from volatile selenium species. Contact ALS if an alternative test to address this interference is needed.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310B
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method.			

Reference Information

Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.

EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EC-SCREEN-VA Water Conductivity Screen (Internal Use Only) APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

F-IC-N-VA Water Fluoride in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA Water Diss. Mercury in Water by CVAAS or CVAFS APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 µm), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-T-CVAA-VA Water Total Mercury in Water by CVAAS or CVAFS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020A (mod)

Water samples are filtered (0.45 µm), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-VA Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

N-T-COL-VA Water Total Nitrogen in water by Colour APHA4500-P(J)/NEMI9171/USGS03-4174

This analysis is carried out using procedures adapted from APHA Method 4500-P (J) "Persulphate Method for Simultaneous Determination of Total Nitrogen and Total Phosphorus" and National Environmental Methods Index - Nemi method 5735.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-VA Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-VA Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-PRES-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

PAH-ME-MS-VA Water PAHs in Water EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorus

Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

SO4-IC-N-VA Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-663912

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

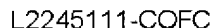
Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report cover.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FROWNS

Appendix 6-I *Groundwater Analytical Results, PAG Cell Wells,
May/June 2019*

Appendix 6-I. Groundwater Analytical Results, PAG Cell Wells, May/June 2019

			Well ID		19-21S	19-22S	19-26S	19-27S	19-34S	19-35S	19-18S	19-18S	RPD %
			Sample ID		19-21S	19-22S	19-26S	19-27S	19-34S	19-35S	19-18	Duplicate	
Units	Detection Limits ¹	BCWQG FAL		BDR	BDR	OVB	OVB	BDR	BDR	OVB	OVB		
		Approved Guidelines	<u>Working Guidelines</u>										
Date Sampled					25-May-2019	5-Jun-2019	24-May-2019	24-May-2019	28-May-2019	23-May-2019	29-May-2019	29-May-2019	
ALS Sample ID					L2279796-1	L2287159-1	L2279796-2	L2279796-3	L2284066-3	L2279562-1	L2284066-1	L2284066-4	
Ionic Charge Balance (%)					10.1%	8.2%	4.9%	9.9%	12.2%	6.4%	10.4%	n/a	
Physical Tests													
Colour	CU	5	-	-	<5.0	<5.0	<5.0	<5.0	16.3	<5.0	7.0	6.7	n/a
Conductivity (lab)	uS/cm	2.0	n.g.	n.g.	1470	525	542	512	805	402	634	634	0.0
Specific Conductivity (field)	uS/cm	1.0	n.g.	n.g.	1493	293	549	512	786	405	624	624	0.0
Hardness (as CaCO ₃)-Total	mg/L	0.5	n.g.	n.g.	116	114	70.3	180.0	17.4	106	153	154	0.7
pH (lab)	pH	0.10	6.5-9	n.g.	8.13	8.46	8.44	8.30	8.65	8.30	8.29	8.3	0.1
pH (field)	pH	0.10	6.5-9	n.g.	7.73	7.90	8.86	8.07	8.76	7.99	8.17	8.17	0.0
Total Suspended Solids	mg/L	3.0	n.g.	n.g.	280	33.3	384	<3.0	189	6.4	405	410	1.2
Total Dissolved Solids ²	mg/L	10.0	n.g.	n.g.	1100	352	393	295	620	243	433	433	0.0
Turbidity (lab)	NTU	0.10	50	n.g.	375	30.1	208	1.15	194	0.37	201	197	2.0
Turbidity (field)	NTU	0.10	50	n.g.	-	-	98	1.3	33	-	650	650	0.0
Alkalinity and Acidity													
Acidity (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	n/a
Alkalinity, Bicarbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	842	229	142	261	389	157	223	223	0.0
Alkalinity, Carbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	7.8	<1.0	3	20.2	2.4	<1.0	1.6	n/a
Alkalinity, Hydroxide (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	n/a
Alkalinity, Total (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	842	237	142	264	410	160	223	225	0.9
Anions and Nitrogen													
Ammonia, Total (as N)	mg/L	0.0050	0.681-28.7 ^(pH, T)	n.g.	0.249	0.0088	0.18	0.058	0.153	0.0996	0.0354	0.0342	3.4
Bromide (Br)	mg/L	0.050	n.g.	n.g.	<0.25	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.050	n/a
Chloride (Cl)	mg/L	0.50	600	n.g.	14.8	3.02	1.03	0.51	7.7	0.58	6.39	6.75	5.5
Fluoride (F)	mg/L	0.020	0.4-2.0 ^(H)	n.g.	0.34	0.49	0.30	0.17	1.14	0.382	0.275	0.288	4.6
Nitrate (as N)	mg/L	0.0050	32.8	n.g.	<0.025	<0.0050	<0.0050	<0.0050	<0.025	<0.0050	<0.0050	<0.0050	n/a
Nitrite (as N)	mg/L	0.0010	0.06 ^(cl)	n.g.	<0.0050	<0.0010	<0.0010	<0.0010	<0.0050	<0.0010	<0.0010	<0.0010	n/a
Total Nitrogen	mg/L	0.050	n.g.	n.g.	0.385	0.217	0.533	0.082	0.274	0.21	0.532	0.558	4.8
Orthophosphate-Dissolved (as P)	mg/L	0.001	n.g.	n.g.	<0.0010	<0.0010	0.0093	0.008	0.011	<0.0010	<0.0010	<0.0010	n/a
Phosphorus (P)-Total Dissolved	mg/L	0.0020	n.g.	n.g.	0.017	0.0036	0.0198	0.0117	0.0522	0.0073	0.0125	0.0106	16.5
Phosphorus (P)-Total	mg/L	0.0020	n.g.	n.g.	0.111	0.033	0.269	0.0131	0.1200	0.012	0.202	0.236	15.5
Sulfate (SO ₄)	mg/L	0.50	128 - 429 ^(H)	n.g.	6.6	50.8	131	27.9	27	53.5	94.5	95.1	0.6
Inorganic/Organic Carbon													
Dissolved Organic Carbon	mg/L	0.5	n.g.	n.g.	1.54	6.38	12.6	1.35	14.5	8.86	106	98.9	6.9
Total Organic Carbon	mg/L	0.50	n.g.	n.g.	10.9	9.12	15.3	1.06	14.5	8.88	91	96.7	6.1
Total Metals													
Aluminum (Al)-Total	mg/L	0.0050	n.g.	n.g.	3.01	0.544	8.00	0.0372	4.05	0.068	8.38	3.87	73.6
Antimony (Sb)-Total	mg/L	0.00050	n.g.	n.g.	<0.00050	0.00152	<0.00050	<0.00050	<0.00050	<0.00050	0.00117	0.00102	n/a
Arsenic (As)-Total	mg/L	0.00050	0.005	n.g.	0.00138	0.00163	0.0134	0.00539	0.00666	0.0027	0.0070	0.00475	38.4
Barium (Ba)-Total	mg/L	0.020	n.g.	5	0.823	0.098	0.119	0.05	0.08	0.03	0.16	0.101	45.2
Beryllium (Be)-Total	mg/L	0.0010	n.g.	0.0053	0.00024	<0.00010	0.00023	<0.00010	0.00049	<0.00010	0.00038	0.00017	n/a
Boron (B)-Total	mg/L	0.10	1.2	n.g.	0.13	0.12	<0.10	<0.10	0.24	0.12	<0.10	<0.10	n/a
Cadmium (Cd)-Total	mg/L	0.000010	n.g.	n.g.	0.0000646	<0.000050	<0.00020	<0.0000050	0.0000224	0.000025	0.000173	0.0000937	n/a
Calcium (Ca)-Total	mg/L	0.10	n.g.	n.g.	32.7	28.2	27.8	29.8	9.65	23.1	44	38.7	12.8
Chromium (Cr)-Total	mg/L	0.0010	n.g.	0.001 or 0.0089 ³	0.005	0.0012	0.0071	<0.0010	0.0027	<0.0010	0.0091	0.004	77.9
Cobalt (Co)-Total	mg/L	0.00030	0.11	n.g.	0.0051	0.00135	0.00461	<0.00030	0.00398	<0.00030	0.00624	0.00329	61.9
Copper (Cu)-Total	mg/L	0.0010	0.002 - 0.026 ^(H)	n.g.	0.0182	0.0042	0.0157	<0.0010	0.0066	0.0014	0.0243	0.0112	73.8
Iron (Fe)-Total	mg/L	0.030	1	n.g.	4.81	3.29	8.81	0.046	6.37	0.12	10.9	4.9	75.9
Lead (Pb)-Total	mg/L	0.00050	0.003 - 0.33 ^(H)	n.g.	0.00344	<0.00050	0.00305	<0.00050	0.004	<0.00050	0.00472	0.00205	78.9
Lithium (Li)-Total	mg/L	0.0050	n.g.	0.87	0.0762	0.0047	0.0087	0.001	0.016	0.014	0.013	0.009	n/a
Magnesium (Mg)-Total	mg/L	0.10	n.g.	n.g.	11.30	8.4	6.54	25.5	2.75	10.7	13.8	12.1	13.1
Manganese (Mn)-Total	mg/L	0.00030	0.80-3.80 ^(H)	n.g.	0.185	0.228	0.394	0.121	0.122	0.072	0.998	0.836	17.7

Appendix 6-I. Groundwater Analytical Results, PAG Cell Wells, May/June 2019

			Well ID		19-21S	19-22S	19-26S	19-27S	19-34S	19-35S	19-18S	19-18S	RPD %
			Sample ID		19-21S	19-22S	19-26S	19-27S	19-34S	19-35S	19-18	Duplicate	
			BCWQG FAL		BDR	BDR	OVB	OVB	BDR	BDR	OVB	OVB	
	Units	Detection Limits ¹	Approved Guidelines	Working Guidelines									
Mercury (Hg)-Total	mg/L	0.000010	n.g.	n.g.	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.00003	-
Molybdenum (Mo)-Total	mg/L	0.0010	2	n.g.	<0.0010	0.0335	0.0797	0.0055	0.0175	0.0105	0.0101	0.0102	1.0
Nickel (Ni)-Total	mg/L	0.0010	n.g.	0.025 - 0.180 ^(H)	0.0052	0.002	0.0093	<0.0010	0.0043	<0.0010	0.0117	0.006	64.4
Potassium (K)-Total	mg/L	2.0	n.g.	373-432	2.9	3.7	<2.0	<2.0	2.4	<2.0	3.5	3.2	n/a
Selenium (Se)-Total	mg/L	0.00010	0.002	n.g.	0.000058	0.000193	0.000175	<0.000050	0.000112	<0.000050	0.000227	0.00016	n/a
Silver (Ag)-Total	mg/L	0.000020	0.0001-0.003 ^(H)	n.g.	0.000059	<0.000020	0.000045	<0.000020	<0.000020	<0.000020	0.000061	0.000026	n/a
Sodium (Na)-Total	mg/L	2.0	n.g.	n.g.	337	84.6	94.3	50.5	181	47.8	84	86.9	3.4
Thallium (Tl)-Total	mg/L	0.00020	n.g.	0.0017 - 0.0063 ⁴	0.000036	<0.000010	0.000039	<0.000010	0.000024	<0.000010	0.00008	0.000034	n/a
Tin (Sn)-Total	mg/L	0.00050	n.g.	n.g.	<0.00050	0.00121	<0.00050	<0.00050	<0.00050	<0.00050	0.00055	<0.00050	n/a
Titanium (Ti)-Total	mg/L	0.010	n.g.	2	0.016	<0.010	0.163	<0.010	<0.010	<0.010	0.085	0.06	34.5
Uranium (U)-Total	mg/L	0.00020	n.g.	0.3	0.00063	0.00199	0.0013	0.00146	0.00108	0.00091	0.00237	0.00168	34.1
Vanadium (V)-Total	mg/L	0.0010	n.g.	n.g.	0.00882	0.00258	0.0184	<0.00050	0.00638	<0.00050	0.0164	0.00762	73.1
Zinc (Zn)-Total	mg/L	0.0050	0.033-0.265 ^(H)	n.g.	0.0201	0.0067	0.031	<0.0050	0.0167	<0.0050	0.0433	0.0229	61.6
Hexavalent Chromium	mg/L	0.0005	n.g.	0.001	<0.0005	<0.0005	<0.0005	-	<0.0005	-	<0.0005	<0.00050	n/a
Dissolved Metals													
Aluminum (Al)-Dissolved	mg/L	0.0050	0.10 ^{(pH)(2)}	n.g.	<0.0050	0.0293	0.226	<0.0050	2.52	<0.0050	0.0059	0.0071	n/a
Antimony (Sb)-Dissolved	mg/L	0.00050	n.g.	n.g.	<0.00050	0.00165	<0.00050	<0.00050	<0.00050	<0.00050	0.00111	0.00115	n/a
Arsenic (As)-Dissolved	mg/L	0.00050	n.g.	n.g.	<0.00050	0.00162	0.0104	0.00542	0.00253	0.00252	0.00348	0.00334	4.1
Barium (Ba)-Dissolved	mg/L	0.020	n.g.	n.g.	0.684	0.064	0.029	0.04	0.03	0.03	0.048	0.045	n/a
Beryllium (Be)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	n/a
Boron (B)-Dissolved	mg/L	0.10	n.g.	n.g.	0.11	0.11	<0.10	<0.10	0.26	0.10	<0.10	<0.10	n/a
Cadmium (Cd)-Dissolved	mg/L	0.000010	0.0000176-0.000457 ^{(H)(5)}	n.g.	<0.0000050	<0.000025	<0.000045	<0.0000050	<0.000020	0.000006	<0.000015	<0.000015	n/a
Calcium (Ca)-Dissolved	mg/L	0.10	n.g.	n.g.	29.3	30.6	22.4	31.5	4.71	24.5	42.3	43.1	1.9
Chromium (Cr)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	n/a
Cobalt (Co)-Dissolved	mg/L	0.00030	n.g.	n.g.	<0.00030	0.00055	<0.00030	<0.00030	0.0007	<0.00030	0.00073	0.0008	n/a
Copper (Cu)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010	0.0045	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	n/a
Iron (Fe)-Dissolved	mg/L	0.030	0.35	n.g.	0.109	0.047	0.207	<0.030	0.572	0.046	0.12	0.22	58.1
Lead (Pb)-Dissolved	mg/L	0.00050	n.g.	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	n/a
Lithium (Li)-Dissolved	mg/L	0.0050	n.g.	n.g.	0.0754	0.0048	0.0042	<0.0010	0.017	0.014	0.0093	0.0095	n/a
Magnesium (Mg)-Dissolved	mg/L	0.10	n.g.	n.g.	10.4	9.07	3.5	24.7	1.38	11.0	11.4	11.3	0.9
Manganese (Mn)-Dissolved	mg/L	0.00030	n.g.	n.g.	0.0542	0.182	0.0544	0.116	0.031	0.0677	0.738	0.749	1.5
Mercury (Hg)-Dissolved	mg/L	0.000010	n.g.	n.g.	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000050	<0.0000050	n/a
Molybdenum (Mo)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010	0.0289	0.0815	0.0055	0.0206	0.0104	0.0122	0.0128	4.8
Nickel (Ni)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	0.0013	n/a
Potassium (K)-Dissolved	mg/L	2.0	n.g.	n.g.	2.6	3.7	<2.0	<2.0	2.1	<2.0	2.1	2.1	n/a
Selenium (Se)-Dissolved	mg/L	0.00010	n.g.	n.g.	<0.000050	0.00027	0.00015	<0.000050	0.000076	<0.000050	0.000228	0.00021	n/a
Silver (Ag)-Dissolved	mg/L	0.000020	n.g.	n.g.	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	n/a
Sodium (Na)-Dissolved	mg/L	2.0	n.g.	n.g.	350	85.8	96.5	56.2	222	49.8	93.9	94.9	1.1
Thallium (Tl)-Dissolved	mg/L	0.00020	n.g.	n.g.	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	n/a
Tin (Sn)-Dissolved	mg/L	0.00050	n.g.	n.g.	<0.00050	0.00141	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	n/a
Titanium (Ti)-Dissolved	mg/L	0.010	n.g.	n.g.	<0.010	<0.010	<0.010	<0.010	0.071	<0.010	<0.010	<0.010	n/a
Uranium (U)-Dissolved	mg/L	0.00020	n.g.	n.g.	<0.00020	0.00213	0.00102	0.00137	0.00058	0.00081	0.00219	0.0021	4.2
Vanadium (V)-Dissolved	mg/L	0.0010	n.g.	n.g.	<0.00050	0.00053	0.00234	<0.00050	0.00255	<0.00050	<0.00050	<0.00050	n/a
Zinc (Zn)-Dissolved	mg/L	0.0050	n.g.	n.g.	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	n/a
PAH													
Acenaphthene	mg/L	0.000010	0.006	n.g	<0.000030	<0.000040	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	n/a
Acenaphthylene	mg/L	0.000010	n.g.	n.g	<0.000040	<0.000040	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	n/a
Acridine	mg/L	0.000010	0.003	n.g	<0.000080	<0.000080	<0.000010	<0.000010	<0.000030	<0.000010	<0.000010	<0.000010	n/a
Anthracene	mg/L	0.000010	0.004	n.g	<0.000040	<0.000070	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	n/a
Benz(a)anthracene	mg/L	0.000010	0.0001	n.g	<0.000040	<0.000060	<0.000010	<0.000010	<0.000030	<0.000010	<0.000010	<0.000010	n/a
Benzo(a)pyrene	mg/L	0.000005	0.00001	n.g	0.0000122	<0.000020	<0.0000050	<0.0000050	<0.0000060	<0.0000050	<0.0000050	<0.0000050	n/a
Benzo(b&j)fluoranthene	mg/L	0.000010	n.g.	n.g	0.000027	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	n/a

Appendix 6-I. Groundwater Analytical Results, PAG Cell Wells, May/June 2019

			Well ID		19-21S	19-22S	19-26S	19-27S	19-34S	19-35S	19-18S	19-18S	RPD %
			Sample ID		19-21S	19-22S	19-26S	19-27S	19-34S	19-35S	19-18	Duplicate	
			BCWQG FAL		BDR	BDR	OVb	OVb	BDR	BDR	OVb	OVb	
	Units	Detection Limits ¹	Approved Guidelines	Working Guidelines									
Benzo(b+j+k)fluoranthene	mg/L	0.000015	n.g.	n.g	0.000027	<0.000022	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	n/a
Benzo(g,h,i)perylene	mg/L	0.000010	n.g.	n.g	0.000014	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	n/a
Benzo(k)fluoranthene	mg/L	0.000010	n.g.	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	n/a
Chrysene	mg/L	0.000010	n.g.	n.g	<0.000050	<0.000070	<0.000010	<0.000010	<0.000030	<0.000010	<0.000010	<0.000010	n/a
Dibenz(a,h)anthracene	mg/L	0.000005	n.g.	n.g	<0.0000050	<0.000020	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	n/a
Fluoranthene	mg/L	0.000010	0.004	n.g	0.000056	0.000058	<0.000010	<0.000010	0.000021	<0.000010	<0.000010	<0.000010	n/a
Fluorene	mg/L	0.000010	0.012	n.g	0.000235	<0.00010	<0.000010	<0.000010	0.000069	<0.000010	<0.000010	<0.000010	n/a
Indeno(1,2,3-c,d)pyrene	mg/L	0.000010	n.g.	n.g	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	n/a
1-Methylnaphthalene	mg/L	0.000050	n.g.	n.g	0.00191	0.00197	<0.000050	<0.000050	0.000507	<0.000050	<0.000050	<0.000050	n/a
2-Methylnaphthalene	mg/L	0.000050	n.g.	n.g	0.00249	0.00246	<0.000050	<0.000050	0.00063	<0.000050	<0.000050	<0.000050	n/a
Naphthalene	mg/L	0.000050	0.001	n.g	0.00141	0.00188	<0.000050	<0.000050	0.000633	<0.000050	<0.000050	<0.000050	n/a
Phenanthrene	mg/L	0.000020	0.0003	n.g	0.000882	0.000791	<0.000020	<0.000020	0.000298	<0.000020	<0.000020	0.00003	n/a
Pyrene	mg/L	0.000010	n.g.	n.g	0.000059	0.000063	<0.000010	<0.000010	0.000038	<0.000010	<0.000010	0.00001	n/a
Quinoline	mg/L	0.000050	n.g.	0.0034	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	n/a

Notes:

¹ Lowest reported detection limit listed

² Dissolved Aluminum is pH dependent. Maximum concentration is 0.10 mg/L when the pH is greater than or equal to 6.5.

³ Chromium (VI) maximum is 1.0 µg/l and Chromium (III) maximum is 8.9 µg/L..

⁴ Thallium - 1.7 µg/L human health, consumption of water + organism and 6.3 µg/L human health, consumption of organism only.

⁵ Dissolved Cadmium is hardness dependent. Lower bound for long term average guideline exposure is 0.0000176 mg/L and the upper bound is 0.000457 mg/L..

(-) Not measured

BCWQG FAL = BC Water Quality Guidelines for Freshwater Aquatic Life

RPD = Relative Percent Difference

(Cl) Chloride dependent guideline

(H) Hardness dependent guideline

(pH) pH dependent guideline

(T) Temperature dependent guideline

n.g. = No guideline

Bold and shaded Concentration exceeds BCWQG Approved Water Quality Guidelines

Bold and underlined Concentration exceeds BCWQG Working Water Quality Guidelines

Appendix 6-J *Laboratory Certifications of Analysis, PAG Cell
Wells, May/June 2019*



CASSIAR GEOSCIENCE CONSULTING LTD
ATTN: Cody Cameron
10628 Hislop Road
Telkwa BC V0J 2X1

Date Received: 26-MAY-19
Report Date: 17-JUN-19 13:49 (MT)
Version: FINAL REV. 2

Client Phone: 778-378-1716

Certificate of Analysis

Lab Work Order #: L2279562
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 10-JUN-19 11:26

Carla Fuginski
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2279562-1 Water 23-MAY-19 14:00 19-35S	L2279562-2 Water 23-MAY-19 12:00 19-36S	L2279562-3 Water 23-MAY-19 12:00 19-37S		
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0		
	Conductivity (uS/cm)	402	214	464		
	Hardness (as CaCO3) (mg/L)	106	111	245		
	pH (pH)	8.30	8.17	8.27		
	Total Suspended Solids (mg/L)	6.4	<3.0	85.2		
	Total Dissolved Solids (mg/L)	243	127	273		
	Turbidity (NTU)	0.37	0.76	21.8		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<1.0	1.3	1.0		
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	157	113	249		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	2.4	<1.0	<1.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0		
	Alkalinity, Total (as CaCO3) (mg/L)	160	113	249		
	Ammonia, Total (as N) (mg/L)	0.0996	<0.0050	0.0250		
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050		
	Chloride (Cl) (mg/L)	0.58	<0.50	2.94		
	Fluoride (F) (mg/L)	0.382	0.091	0.127		
	Nitrate (as N) (mg/L)	<0.0050	0.109	0.110		
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	0.0031		
	Total Nitrogen (mg/L)	0.214	0.149	0.336		
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010		
	Phosphorus (P)-Total Dissolved (mg/L)	0.0073	0.0048	0.0032		
	Phosphorus (P)-Total (mg/L)	0.0119	0.0059	0.0878		
	Sulfate (SO4) (mg/L)	53.5	3.43	10.2		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	8.86	1.32	4.25		
	Total Organic Carbon (mg/L)	8.88	1.21	5.03		
Total Metals	Aluminum (Al)-Total (mg/L)	0.0678	0.0377	3.10		
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050		
	Arsenic (As)-Total (mg/L)	0.00269	<0.00050	0.00259		
	Barium (Ba)-Total (mg/L)	0.031	0.075	0.150		
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	0.00011		
	Boron (B)-Total (mg/L)	0.12	<0.10	<0.10		
	Cadmium (Cd)-Total (mg/L)	0.0000248	0.0000208	0.000173		
	Calcium (Ca)-Total (mg/L)	23.1	33.2	69.1		
	Chromium (Cr)-Total (mg/L)	<0.0010	<0.0010	0.0033		
	Cobalt (Co)-Total (mg/L)	<0.00030	<0.00030	0.00338		
	Copper (Cu)-Total (mg/L)	0.0014	<0.0010	0.0062		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2279562-1 Water 23-MAY-19 14:00 19-35S	L2279562-2 Water 23-MAY-19 12:00 19-36S	L2279562-3 Water 23-MAY-19 12:00 19-37S		
Grouping	Analyte						
WATER							
Total Metals	Iron (Fe)-Total (mg/L)	0.119	0.047	4.32			
	Lead (Pb)-Total (mg/L)	<0.00050	<0.00050	0.00187			
	Lithium (Li)-Total (mg/L)	0.0143	<0.0010	0.0042			
	Magnesium (Mg)-Total (mg/L)	10.7	6.05	20.3			
	Manganese (Mn)-Total (mg/L)	0.0718	0.00714	0.417			
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Total (mg/L)	0.0105	<0.0010	<0.0010			
	Nickel (Ni)-Total (mg/L)	<0.0010	<0.0010	0.0045			
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0			
	Selenium (Se)-Total (mg/L)	<0.000050	0.000138	0.000287			
	Silver (Ag)-Total (mg/L)	<0.000020	<0.000020	0.000036			
	Sodium (Na)-Total (mg/L)	47.8	3.0	19.8			
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010	0.000030			
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050	0.00084			
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	0.081			
	Uranium (U)-Total (mg/L)	0.00091	<0.00020	0.00129			
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	0.00804			
	Zinc (Zn)-Total (mg/L)	<0.0050	<0.0050	0.0172			
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD			
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	<0.0050	<0.0050	0.0420			
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050			
	Arsenic (As)-Dissolved (mg/L)	0.00252	<0.00050	<0.00050			
	Barium (Ba)-Dissolved (mg/L)	0.028	0.072	0.103			
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010			
	Boron (B)-Dissolved (mg/L)	0.10	<0.10	<0.10			
	Cadmium (Cd)-Dissolved (mg/L)	0.0000060	0.0000056	0.0000448			
	Calcium (Ca)-Dissolved (mg/L)	24.5	34.5	67.9			
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010			
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.00030	0.00390			
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010	0.0021			
	Iron (Fe)-Dissolved (mg/L)	0.046	<0.030	0.048			
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050			
	Lithium (Li)-Dissolved (mg/L)	0.0135	<0.0010	0.0024			
	Magnesium (Mg)-Dissolved (mg/L)	11.0	6.13	18.4			
	Manganese (Mn)-Dissolved (mg/L)	0.0677	0.00547	0.175			
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2279562-1 Water 23-MAY-19 14:00 19-35S	L2279562-2 Water 23-MAY-19 12:00 19-36S	L2279562-3 Water 23-MAY-19 12:00 19-37S		
Grouping	Analyte						
WATER							
Dissolved Metals	Molybdenum (Mo)-Dissolved (mg/L)	0.0104	<0.0010	<0.0010			
	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.0010	0.0011			
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0			
	Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000155	0.000387			
	Silver (Ag)-Dissolved (mg/L)	<0.000020 ^{DLM}	<0.000020	<0.000020			
	Sodium (Na)-Dissolved (mg/L)	49.8	3.2	7.5			
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020			
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050			
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010			
	Uranium (U)-Dissolved (mg/L)	0.00081	<0.00020	0.00113			
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050			
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050	0.0061			
Speciated Metals	Hexavalent Chromium (mg/L)				<0.00050		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010	<0.000010	<0.000010			
	Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010			
	Acridine (mg/L)	<0.000010	<0.000010	<0.000010			
	Anthracene (mg/L)	<0.000010	<0.000010	<0.000010			
	Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000010			
	Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050	<0.0000050			
	Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010			
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	<0.000015			
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010			
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010			
	Chrysene (mg/L)	<0.000010	<0.000010	<0.000010			
	Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050			
	Fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010			
	Fluorene (mg/L)	<0.000010	<0.000010	<0.000010			
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010			
	1-Methylnaphthalene (mg/L)	<0.000050	<0.000050	<0.000050			
	2-Methylnaphthalene (mg/L)	<0.000050	<0.000050	<0.000050			
	Naphthalene (mg/L)	<0.000050	<0.000050	<0.000050			
	Phenanthrene (mg/L)	<0.000020	<0.000020	<0.000020			
	Pyrene (mg/L)	<0.000010	<0.000010	<0.000010			
	Quinoline (mg/L)	<0.000050	<0.000050	<0.000050			
	Surrogate: Acridine d9 (%)	97.9	94.3	95.7			
	Surrogate: Chrysene d12 (%)	103.9	108.1	90.2			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2279562-1	L2279562-2	L2279562-3		
		Description	Water	Water	Water		
		Sampled Date	23-MAY-19	23-MAY-19	23-MAY-19		
		Sampled Time	14:00	12:00	12:00		
		Client ID	19-35S	19-36S	19-37S		
Grouping	Analyte						
WATER							
Polycyclic Aromatic Hydrocarbons	Surrogate: Naphthalene d8 (%)		110.5	101.4	98.2		
	Surrogate: Phenanthrene d10 (%)		109.0	107.7	105.0		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Nitrite (as N)	B	L2279562-1, -2, -3
Matrix Spike	Dissolved Organic Carbon	MS-B	L2279562-1, -2, -3
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2279562-1, -2, -3
Matrix Spike	Boron (B)-Dissolved	MS-B	L2279562-1, -2, -3
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2279562-1, -2, -3
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2279562-1, -2, -3
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2279562-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2279562-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2279562-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2279562-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2279562-1, -2, -3

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310B
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method.			
Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.			
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)	APHA 3500-Cr C (Ion Chromatography)
This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.			
Results are based on an un-filtered, field-preserved sample.			
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

Reference Information

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EC-SCREEN-VA Water Conductivity Screen (Internal Use Only) APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

F-IC-N-VA Water Fluoride in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA Water Diss. Mercury in Water by CVAAS or CVAFS APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 µm), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-T-CVAA-VA Water Total Mercury in Water by CVAAS or CVAFS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020A (mod)

Water samples are filtered (0.45 µm), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-VA Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

N-T-COL-VA Water Total Nitrogen in water by Colour APHA4500-P(J)/NEMI9171/USGS03-4174

This analysis is carried out using procedures adapted from APHA Method 4500-P (J) "Persulphate Method for Simultaneous Determination of Total Nitrogen and Total Phosphorus" and National Environmental Methods Index - Nemi method 5735.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-VA Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-VA Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-PRES-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

P-TD-PRES-COL-VA Water Total Dissolved P in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

PAH-ME-MS-VA Water PAHs in Water EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH

Reference Information

electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

SO4-IC-N-VA Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



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Page 1 of 1

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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW CQC form.

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YELLOW - CLIENT COPY

SEPT 2017 EDITION



CASSIAR GEOSCIENCE CONSULTING LTD
ATTN: Cody Cameron
10628 Hislop Road
Telkwa BC V0J 2X1

Date Received: 26-MAY-19
Report Date: 18-JUN-19 16:13 (MT)
Version: FINAL REV. 2

Client Phone: 778-378-1716

Certificate of Analysis

Lab Work Order #: L2279796
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 10-JUN-19 11:47


Carla Fuginski
Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
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ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2279796-1 Water 25-MAY-19 13:00 19-21S	L2279796-2 Water 24-MAY-19 14:00 19-26S	L2279796-3 Water 24-MAY-19 12:00 19-27S		
Grouping	Analyte						
WATER							
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0			
	Conductivity (uS/cm)	1470	542	512			
	Hardness (as CaCO3) (mg/L)	116	70.3	180			
	pH (pH)	8.13	8.44	8.30			
	Total Suspended Solids (mg/L)	280	384	<3.0			
	Total Dissolved Solids (mg/L)	1100	393	295			
	Turbidity (NTU)	375	208	1.15			
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<1.0	<1.0	<1.0			
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	842	142	261			
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	3.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0			
	Alkalinity, Total (as CaCO3) (mg/L)	842	142	264			
	Ammonia, Total (as N) (mg/L)	0.249	0.180	0.0580			
	Bromide (Br) (mg/L)	<0.25 ^{DLDS}	<0.050	<0.050			
	Chloride (Cl) (mg/L)	14.8	1.03	0.51			
	Fluoride (F) (mg/L)	0.34	0.298	0.173			
	Nitrate (as N) (mg/L)	<0.025 ^{DLDS}	<0.0050	<0.0050			
	Nitrite (as N) (mg/L)	<0.0050 ^{DLDS}	<0.0010	<0.0010			
	Total Nitrogen (mg/L)	0.385	0.533	0.082			
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.0093	0.0082			
	Phosphorus (P)-Total Dissolved (mg/L)	0.0170	0.0198	0.0117			
	Phosphorus (P)-Total (mg/L)	0.111	0.269	0.0131			
	Sulfate (SO4) (mg/L)	6.6	131	27.9			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.54	12.6	1.35			
	Total Organic Carbon (mg/L)	10.9	15.3	1.06			
Total Metals	Aluminum (Al)-Total (mg/L)	3.01	8.00	0.0372			
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050			
	Arsenic (As)-Total (mg/L)	0.00138	0.0134	0.00539			
	Barium (Ba)-Total (mg/L)	0.823	0.119	0.046			
	Beryllium (Be)-Total (mg/L)	0.00024	0.00023	<0.00010			
	Boron (B)-Total (mg/L)	0.13	<0.10	<0.10			
	Cadmium (Cd)-Total (mg/L)	0.0000646	<0.00020 ^{DLM}	<0.0000050			
	Calcium (Ca)-Total (mg/L)	32.7	27.8	29.8			
	Chromium (Cr)-Total (mg/L)	0.0050	0.0071	<0.0010			
	Cobalt (Co)-Total (mg/L)	0.00510	0.00461	<0.00030			
	Copper (Cu)-Total (mg/L)	0.0182	0.0157	<0.0010			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2279796-1 Water 25-MAY-19 13:00 19-21S	L2279796-2 Water 24-MAY-19 14:00 19-26S	L2279796-3 Water 24-MAY-19 12:00 19-27S		
Grouping	Analyte						
WATER							
Total Metals	Iron (Fe)-Total (mg/L)	4.81	8.81	0.046			
	Lead (Pb)-Total (mg/L)	0.00344	0.00305	<0.00050			
	Lithium (Li)-Total (mg/L)	0.0762	0.0087	0.0010			
	Magnesium (Mg)-Total (mg/L)	11.3	6.54	25.5			
	Manganese (Mn)-Total (mg/L)	0.185	0.394	0.121			
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Total (mg/L)	<0.0010	0.0797	0.0055			
	Nickel (Ni)-Total (mg/L)	0.0052	0.0093	<0.0010			
	Potassium (K)-Total (mg/L)	2.9	<2.0	<2.0			
	Selenium (Se)-Total (mg/L)	0.000058	0.000175	<0.000050			
	Silver (Ag)-Total (mg/L)	0.000059	0.000045	<0.000020			
	Sodium (Na)-Total (mg/L)	337	94.3	50.5			
	Thallium (Tl)-Total (mg/L)	0.000036	0.000039	<0.000010			
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050	<0.00050			
	Titanium (Ti)-Total (mg/L)	0.016	0.163	<0.010			
	Uranium (U)-Total (mg/L)	0.00063	0.00130	0.00146			
	Vanadium (V)-Total (mg/L)	0.00882	0.0184	<0.00050			
	Zinc (Zn)-Total (mg/L)	0.0201	0.0310	<0.0050			
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD			
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	<0.0050	0.226	<0.0050			
	Antimony (Sb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050			
	Arsenic (As)-Dissolved (mg/L)	<0.00050	0.0104	0.00542			
	Barium (Ba)-Dissolved (mg/L)	0.684	0.029	0.042			
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010			
	Boron (B)-Dissolved (mg/L)	0.11	<0.10	<0.10			
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	<0.000045 ^{DLM}	<0.0000050			
	Calcium (Ca)-Dissolved (mg/L)	29.3	22.4	31.5			
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010			
	Cobalt (Co)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030			
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010			
	Iron (Fe)-Dissolved (mg/L)	0.109	0.207	<0.030			
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050			
	Lithium (Li)-Dissolved (mg/L)	0.0754	0.0042	<0.0010			
	Magnesium (Mg)-Dissolved (mg/L)	10.4	3.50	24.7			
	Manganese (Mn)-Dissolved (mg/L)	0.0542	0.0544	0.116			
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2279796-1 Water 25-MAY-19 13:00 19-21S	L2279796-2 Water 24-MAY-19 14:00 19-26S	L2279796-3 Water 24-MAY-19 12:00 19-27S		
Grouping	Analyte						
WATER							
Dissolved Metals	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010	0.0815	0.0055			
	Nickel (Ni)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010			
	Potassium (K)-Dissolved (mg/L)	2.6	<2.0	<2.0			
	Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000150	<0.000050			
	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020			
	Sodium (Na)-Dissolved (mg/L)	350	96.5	56.2			
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020			
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050			
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010			
	Uranium (U)-Dissolved (mg/L)	<0.00020	0.00102	0.00137			
	Vanadium (V)-Dissolved (mg/L)	<0.00050	0.00234	<0.00050			
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050			
Speciated Metals	Hexavalent Chromium (mg/L)	<0.00050 ^{DLCI}	<0.00050				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000030 ^{DLCI}	<0.000010	<0.000010			
	Acenaphthylene (mg/L)	<0.000040 ^{DLCI}	<0.000010	<0.000010			
	Acridine (mg/L)	<0.000080 ^{DLCI}	<0.000010	<0.000010			
	Anthracene (mg/L)	<0.000040 ^{DLCI}	<0.000010	<0.000010			
	Benz(a)anthracene (mg/L)	<0.000040 ^{DLCI}	<0.000010	<0.000010			
	Benzo(a)pyrene (mg/L)	0.0000122	<0.0000050	<0.0000050			
	Benzo(b&j)fluoranthene (mg/L)	0.000027	<0.000010	<0.000010			
	Benzo(b+j+k)fluoranthene (mg/L)	0.000027	<0.000015	<0.000015			
	Benzo(g,h,i)perylene (mg/L)	0.000014	<0.000010	<0.000010			
	Benzo(k)fluoranthene (mg/L)	<0.000010 ^{DLCI}	<0.000010	<0.000010			
	Chrysene (mg/L)	<0.000050 ^{DLCI}	<0.000010	<0.000010			
	Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050			
	Fluoranthene (mg/L)	0.000056	<0.000010	<0.000010			
	Fluorene (mg/L)	0.000235	<0.000010	<0.000010			
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010			
	1-Methylnaphthalene (mg/L)	0.00191	<0.000050	<0.000050			
	2-Methylnaphthalene (mg/L)	0.00249	<0.000050	<0.000050			
	Naphthalene (mg/L)	0.00141	<0.000050	<0.000050			
	Phenanthrene (mg/L)	0.000882	<0.000020	<0.000020			
	Pyrene (mg/L)	0.000059	<0.000010	<0.000010			
	Quinoline (mg/L)	<0.000050	<0.000050	<0.000050			
	Surrogate: Acridine d9 (%)	53.6 ^{SURR-ND}	67.6	103.0			
	Surrogate: Chrysene d12 (%)	95.3	100.0	118.2			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2279796-1	L2279796-2	L2279796-3		
		Description	Water	Water	Water		
		Sampled Date	25-MAY-19	24-MAY-19	24-MAY-19		
		Sampled Time	13:00	14:00	12:00		
		Client ID	19-21S	19-26S	19-27S		
Grouping	Analyte						
WATER							
Polycyclic Aromatic Hydrocarbons	Surrogate: Naphthalene d8 (%)		99.0	97.5	105.6		
	Surrogate: Phenanthrene d10 (%)		106.0	106.0	116.5		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Acidity (as CaCO3)	B	L2279796-1, -2
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2279796-1, -2, -3
Matrix Spike	Boron (B)-Dissolved	MS-B	L2279796-1, -2, -3
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2279796-1, -2, -3
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2279796-1, -2, -3
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2279796-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2279796-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2279796-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2279796-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2279796-1, -2, -3

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310B
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method.			
Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.			
Concurrent measurement of sample pH is recommended.			
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)	APHA 3500-Cr C (Ion Chromatography)
This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.			
Results are based on an un-filtered, field-preserved sample.			

Reference Information

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
F-IC-N-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)
Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
N-T-COL-VA	Water	Total Nitrogen in water by Colour	APHA4500-P(J)/NEMI9171/USGS03-4174
This analysis is carried out using procedures adapted from APHA Method 4500-P (J) "Persulphate Method for Simultaneous Determination of Total Nitrogen and Total Phosphorus" and National Environmental Methods Index - Nemi method 5735.			
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-PRES-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.			
Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.			
P-TD-PRES-COL-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.			
Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.			
PAH-ME-MS-VA	Water	PAHs in Water	EPA 3511/8270D (mod)
PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

SO4-IC-N-VA Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2279796

Report Date: 18-JUN-19

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Client: CASSIAR GEOSCIENCE CONSULTING LTD

10628 Hislop Road
Telkwa BC V0J 2X1

Contact: Cody Cameron

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R4645594							
WG3059799-3 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			110.2		%		85-115	28-MAY-19
WG3059799-1 MB								
Acidity (as CaCO3)			2.3	B	mg/L		2	28-MAY-19
Batch	R4650590							
WG3059654-3 CRM		VA-ACY-CONTROL						
Acidity (as CaCO3)			104.8		%		85-115	29-MAY-19
WG3059654-1 MB								
Acidity (as CaCO3)			1.8		mg/L		2	29-MAY-19
ALK-TITR-VA		Water						
Batch	R4645604							
WG3059866-3 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO3)			94.6		%		85-115	28-MAY-19
WG3059866-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	28-MAY-19
Batch	R4653465							
WG3062305-3 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO3)			93.9		%		85-115	31-MAY-19
WG3062305-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	31-MAY-19
BR-L-IC-N-VA		Water						
Batch	R4651225							
WG3059629-2 LCS								
Bromide (Br)			100.7		%		85-115	28-MAY-19
WG3059629-1 MB								
Bromide (Br)			<0.050		mg/L		0.05	28-MAY-19
CARBONS-DOC-VA		Water						
Batch	R4657266							
WG3065035-2 LCS								
Dissolved Organic Carbon			97.2		%		80-120	03-JUN-19
WG3065035-1 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	03-JUN-19
Batch	R4659280							
WG3066775-4 LCS								
Dissolved Organic Carbon			97.5		%		80-120	04-JUN-19
WG3066775-3 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	04-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA								
Water								
Batch	R4657266							
WG3065034-2	LCS							
Total Organic Carbon			102.3		%		80-120	03-JUN-19
Batch	R4659280							
WG3065034-1	MB							
Total Organic Carbon			<0.50		mg/L		0.5	03-JUN-19
Batch	R4659280							
WG3066775-4	LCS							
Total Organic Carbon			104.7		%		80-120	04-JUN-19
Batch	R4659280							
WG3066775-3	MB							
Total Organic Carbon			<0.50		mg/L		0.5	04-JUN-19
CL-IC-N-VA								
Water								
Batch	R4651225							
WG3059629-2	LCS							
Chloride (Cl)			100.8		%		90-110	28-MAY-19
Batch	R4651225							
WG3059629-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	28-MAY-19
COLOUR-TRUE-VA								
Water								
Batch	R4645241							
WG3059785-2	CRM	VA-COLOUR-T						
Colour, True			97.1		%		85-115	28-MAY-19
Batch	R4645241							
WG3059785-1	MB							
Colour, True			<5.0		CU		5	28-MAY-19
CR-CR6-ED								
Water								
Batch	R4671714							
WG3079348-2	LCS							
Hexavalent Chromium			98.2		%		80-120	17-JUN-19
Batch	R4671714							
WG3079348-1	MB							
Hexavalent Chromium			<0.00050		mg/L		0.0005	17-JUN-19
EC-PCT-VA								
Water								
Batch	R4645594							
WG3059799-4	CRM	VA-EC-PCT-CONTROL						
Conductivity			103.9		%		90-110	28-MAY-19
Batch	R4645594							
WG3059799-1	MB							
Conductivity			<2.0		uS/cm		2	28-MAY-19
Batch	R4645604							
WG3059866-4	CRM	VA-EC-PCT-CONTROL						
Conductivity			106.9		%		90-110	28-MAY-19
Batch	R4645604							
WG3059866-1	MB							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA								
Water								
Batch	R4645604							
WG3059866-1	MB							
Conductivity			<2.0		uS/cm		2	28-MAY-19
F-IC-N-VA								
Water								
Batch	R4651225							
WG3059629-2	LCS							
Fluoride (F)			99.99		%		90-110	28-MAY-19
WG3059629-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	28-MAY-19
HG-D-CVAA-VA								
Water								
Batch	R4647372							
WG3061239-10	LCS							
Mercury (Hg)-Dissolved			102.9		%		80-120	29-MAY-19
WG3061239-9	MB	NP						
Mercury (Hg)-Dissolved			<0.000005C		mg/L		0.000005	29-MAY-19
WG3061239-12	MS	L2279796-3						
Mercury (Hg)-Dissolved			96.9		%		70-130	29-MAY-19
HG-T-CVAA-VA								
Water								
Batch	R4647372							
WG3061243-2	LCS							
Mercury (Hg)-Total			100.9		%		80-120	29-MAY-19
WG3061243-1	MB							
Mercury (Hg)-Total			<0.000005C		mg/L		0.000005	29-MAY-19
MET-D-CCMS-VA								
Water								
Batch	R4647947							
WG3060285-2	LCS							
Aluminum (Al)-Dissolved			98.0		%		80-120	29-MAY-19
Antimony (Sb)-Dissolved			93.0		%		80-120	29-MAY-19
Arsenic (As)-Dissolved			98.6		%		80-120	29-MAY-19
Barium (Ba)-Dissolved			97.3		%		80-120	29-MAY-19
Beryllium (Be)-Dissolved			96.0		%		80-120	29-MAY-19
Boron (B)-Dissolved			91.8		%		80-120	29-MAY-19
Cadmium (Cd)-Dissolved			99.9		%		80-120	29-MAY-19
Calcium (Ca)-Dissolved			95.0		%		80-120	29-MAY-19
Chromium (Cr)-Dissolved			101.0		%		80-120	29-MAY-19
Cobalt (Co)-Dissolved			97.1		%		80-120	29-MAY-19

Quality Control Report

Workorder: L2279796

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA								
Water								
Batch	R4647947							
WG3060285-2	LCS							
Copper (Cu)-Dissolved			97.9		%		80-120	29-MAY-19
Iron (Fe)-Dissolved			96.9		%		80-120	29-MAY-19
Lead (Pb)-Dissolved			97.6		%		80-120	29-MAY-19
Lithium (Li)-Dissolved			92.4		%		80-120	29-MAY-19
Magnesium (Mg)-Dissolved			104.7		%		80-120	29-MAY-19
Manganese (Mn)-Dissolved			96.1		%		80-120	29-MAY-19
Molybdenum (Mo)-Dissolved			99.1		%		80-120	29-MAY-19
Nickel (Ni)-Dissolved			98.7		%		80-120	29-MAY-19
Potassium (K)-Dissolved			105.2		%		80-120	29-MAY-19
Selenium (Se)-Dissolved			98.7		%		80-120	29-MAY-19
Silver (Ag)-Dissolved			99.96		%		80-120	29-MAY-19
Sodium (Na)-Dissolved			97.7		%		80-120	29-MAY-19
Thallium (Tl)-Dissolved			100.9		%		80-120	29-MAY-19
Tin (Sn)-Dissolved			97.1		%		80-120	29-MAY-19
Titanium (Ti)-Dissolved			99.2		%		80-120	29-MAY-19
Uranium (U)-Dissolved			98.0		%		80-120	29-MAY-19
Vanadium (V)-Dissolved			100.9		%		80-120	29-MAY-19
Zinc (Zn)-Dissolved			99.2		%		80-120	29-MAY-19
WG3060285-1	MB	NP						
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	29-MAY-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	29-MAY-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	29-MAY-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	29-MAY-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	29-MAY-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	29-MAY-19
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	29-MAY-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	29-MAY-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	29-MAY-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	29-MAY-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	29-MAY-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	29-MAY-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	29-MAY-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	29-MAY-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	29-MAY-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA								
Water								
Batch	R4647947							
WG3060285-1	MB	NP						
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	29-MAY-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	29-MAY-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	29-MAY-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	29-MAY-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	29-MAY-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	29-MAY-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	29-MAY-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	29-MAY-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	29-MAY-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	29-MAY-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	29-MAY-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	29-MAY-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	29-MAY-19
MET-T-CCMS-VA								
Water								
Batch	R4650231							
WG3060047-2	LCS							
Aluminum (Al)-Total			100.7		%		80-120	30-MAY-19
Antimony (Sb)-Total			103.4		%		80-120	30-MAY-19
Arsenic (As)-Total			99.5		%		80-120	30-MAY-19
Barium (Ba)-Total			98.8		%		80-120	30-MAY-19
Beryllium (Be)-Total			100.3		%		80-120	30-MAY-19
Boron (B)-Total			99.5		%		80-120	30-MAY-19
Cadmium (Cd)-Total			101.9		%		80-120	30-MAY-19
Calcium (Ca)-Total			99.9		%		80-120	30-MAY-19
Chromium (Cr)-Total			101.1		%		80-120	30-MAY-19
Cobalt (Co)-Total			99.1		%		80-120	30-MAY-19
Copper (Cu)-Total			98.9		%		80-120	30-MAY-19
Iron (Fe)-Total			95.0		%		80-120	30-MAY-19
Lead (Pb)-Total			99.4		%		80-120	30-MAY-19
Lithium (Li)-Total			98.5		%		80-120	30-MAY-19
Magnesium (Mg)-Total			106.1		%		80-120	30-MAY-19
Manganese (Mn)-Total			101.2		%		80-120	30-MAY-19
Molybdenum (Mo)-Total			103.9		%		80-120	30-MAY-19
Nickel (Ni)-Total			100.2		%		80-120	30-MAY-19

Quality Control Report

Workorder: L2279796

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R4650231							
WG3060047-2	LCS							
Potassium (K)-Total			96.0		%		80-120	30-MAY-19
Selenium (Se)-Total			100.8		%		80-120	30-MAY-19
Silver (Ag)-Total			101.1		%		80-120	30-MAY-19
Sodium (Na)-Total			97.6		%		80-120	30-MAY-19
Thallium (Tl)-Total			99.6		%		80-120	30-MAY-19
Tin (Sn)-Total			100.5		%		80-120	30-MAY-19
Titanium (Ti)-Total			100.9		%		80-120	30-MAY-19
Uranium (U)-Total			101.2		%		80-120	30-MAY-19
Vanadium (V)-Total			100.1		%		80-120	30-MAY-19
Zinc (Zn)-Total			102.4		%		80-120	30-MAY-19
WG3060047-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	30-MAY-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Boron (B)-Total			<0.010		mg/L		0.01	30-MAY-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	30-MAY-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	30-MAY-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	30-MAY-19
Iron (Fe)-Total			<0.010		mg/L		0.01	30-MAY-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	30-MAY-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	30-MAY-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	30-MAY-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	30-MAY-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	30-MAY-19
Potassium (K)-Total			<0.050		mg/L		0.05	30-MAY-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	30-MAY-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	30-MAY-19
Sodium (Na)-Total			<0.050		mg/L		0.05	30-MAY-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	30-MAY-19

Quality Control Report

Workorder: L2279796

Report Date: 18-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA	Water							
Batch R4650231								
WG3060047-1 MB								
Tin (Sn)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	30-MAY-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	30-MAY-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	30-MAY-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	30-MAY-19
N-T-COL-VA	Water							
Batch R4660591								
WG3068843-14 LCS								
Total Nitrogen			102.2		%		75-125	06-JUN-19
WG3068843-13 MB								
Total Nitrogen			<0.030		mg/L		0.03	06-JUN-19
NH3-F-VA	Water							
Batch R4654285								
WG3065024-2 LCS								
Ammonia, Total (as N)			99.7		%		85-115	03-JUN-19
WG3065024-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	03-JUN-19
Batch R4659344								
WG3065004-2 LCS								
Ammonia, Total (as N)			89.6		%		85-115	05-JUN-19
WG3065004-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	05-JUN-19
NO2-L-IC-N-VA	Water							
Batch R4651225								
WG3059629-2 LCS								
Nitrite (as N)			97.7		%		90-110	28-MAY-19
WG3059629-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	28-MAY-19
NO3-L-IC-N-VA	Water							
Batch R4651225								
WG3059629-2 LCS								
Nitrate (as N)			101.2		%		90-110	28-MAY-19
WG3059629-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	28-MAY-19
P-T-PRES-COL-VA	Water							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-PRES-COL-VA Water								
Batch	R4656147							
WG3064992-2 LCS								
Phosphorus (P)-Total			89.3		%		80-120	04-JUN-19
WG3065032-2 LCS								
Phosphorus (P)-Total			94.3		%		80-120	04-JUN-19
WG3064992-1 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	04-JUN-19
WG3065032-1 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	04-JUN-19
P-TD-PRES-COL-VA Water								
Batch	R4656467							
WG3065029-2 LCS								
Phosphorus (P)-Total Dissolved			96.0		%		80-120	04-JUN-19
WG3065029-1 MB								
Phosphorus (P)-Total Dissolved			<0.0020		mg/L		0.002	04-JUN-19
PAH-ME-MS-VA Water								
Batch	R4653616							
WG3066892-2 LCS								
Acenaphthene			114.2		%		60-130	04-JUN-19
Acenaphthylene			113.6		%		60-130	04-JUN-19
Acridine			105.8		%		60-130	04-JUN-19
Anthracene			111.9		%		60-130	04-JUN-19
Benz(a)anthracene			129.8		%		60-130	04-JUN-19
Benzo(a)pyrene			94.4		%		60-130	04-JUN-19
Benzo(b&j)fluoranthene			104.7		%		60-130	04-JUN-19
Benzo(g,h,i)perylene			125.3		%		60-130	04-JUN-19
Benzo(k)fluoranthene			99.9		%		60-130	04-JUN-19
Chrysene			114.4		%		60-130	04-JUN-19
Dibenz(a,h)anthracene			127.2		%		60-130	04-JUN-19
Fluoranthene			122.3		%		60-130	04-JUN-19
Fluorene			102.9		%		60-130	04-JUN-19
Indeno(1,2,3-c,d)pyrene			126.8		%		60-130	04-JUN-19
1-Methylnaphthalene			104.9		%		60-130	04-JUN-19
2-Methylnaphthalene			99.4		%		60-130	04-JUN-19
Naphthalene			95.8		%		50-130	04-JUN-19
Phenanthrene			116.5		%		60-130	04-JUN-19
Pyrene			120.5		%		60-130	04-JUN-19

Quality Control Report

Workorder: L2279796

Report Date: 18-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-ME-MS-VA		Water						
Batch	R4653616							
WG3066892-2	LCS							
Quinoline			121.4		%		60-130	04-JUN-19
WG3066892-1	MB							
Acenaphthene			<0.000010		mg/L		0.00001	04-JUN-19
Acenaphthylene			<0.000010		mg/L		0.00001	04-JUN-19
Acridine			<0.000010		mg/L		0.00001	04-JUN-19
Anthracene			<0.000010		mg/L		0.00001	04-JUN-19
Benz(a)anthracene			<0.000010		mg/L		0.00001	04-JUN-19
Benzo(a)pyrene			<0.0000050		mg/L		0.000005	04-JUN-19
Benzo(b&j)fluoranthene			<0.000010		mg/L		0.00001	04-JUN-19
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	04-JUN-19
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	04-JUN-19
Chrysene			<0.000010		mg/L		0.00001	04-JUN-19
Dibenz(a,h)anthracene			<0.0000050		mg/L		0.000005	04-JUN-19
Fluoranthene			<0.000010		mg/L		0.00001	04-JUN-19
Fluorene			<0.000010		mg/L		0.00001	04-JUN-19
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	04-JUN-19
1-Methylnaphthalene			<0.000050		mg/L		0.00005	04-JUN-19
2-Methylnaphthalene			<0.000050		mg/L		0.00005	04-JUN-19
Naphthalene			<0.000050		mg/L		0.00005	04-JUN-19
Phenanthrene			<0.000020		mg/L		0.00002	04-JUN-19
Pyrene			<0.000010		mg/L		0.00001	04-JUN-19
Quinoline			<0.000050		mg/L		0.00005	04-JUN-19
Surrogate: Acridine d9			101.7		%		60-130	04-JUN-19
Surrogate: Chrysene d12			98.3		%		60-130	04-JUN-19
Surrogate: Naphthalene d8			92.2		%		50-130	04-JUN-19
Surrogate: Phenanthrene d10			103.5		%		60-130	04-JUN-19
PH-PCT-VA		Water						
Batch	R4645594							
WG3059799-2	CRM	VA-PH7-BUF						
pH			6.99		pH		6.9-7.1	28-MAY-19
Batch	R4645604							
WG3059866-2	CRM	VA-PH7-BUF						
pH			7.00		pH		6.9-7.1	28-MAY-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-VA								
Batch R4646495								
WG3059784-2	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			106.6		%		80-120	28-MAY-19
WG3059784-1	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	28-MAY-19
SO4-IC-N-VA								
Batch R4651225								
WG3059629-2	LCS							
Sulfate (SO4)			102.0		%		90-110	28-MAY-19
WG3059629-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	28-MAY-19
TDS-VA								
Batch R4652312								
WG3062859-14	LCS							
Total Dissolved Solids			103.6		%		85-115	30-MAY-19
WG3062859-13	MB							
Total Dissolved Solids			<10		mg/L		10	30-MAY-19
TSS-VA								
Batch R4654083								
WG3063805-5	LCS							
Total Suspended Solids			96.7		%		85-115	31-MAY-19
WG3063805-4	MB							
Total Suspended Solids			<3.0		mg/L		3	31-MAY-19
TURBIDITY-VA								
Batch R4645232								
WG3059927-2	CRM	VA-FORM-40						
Turbidity			107.6		%		85-115	28-MAY-19
WG3059927-1	MB							
Turbidity			<0.10		NTU		0.1	28-MAY-19

Quality Control Report

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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.

Quality Control Report

Workorder: L2279796

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Colour (True) by Spectrometer	2	24-MAY-19 14:00	28-MAY-19 03:18	3	4	days	EHTL
	3	24-MAY-19 12:00	28-MAY-19 03:18	3	4	days	EHTL
Turbidity by Meter	3	24-MAY-19 12:00	28-MAY-19 01:12	3	4	days	EHTL
pH by Meter (Automated)	1	25-MAY-19 13:00	28-MAY-19 09:21	0.25	68	hours	EHTR-FM
	2	24-MAY-19 14:00	28-MAY-19 11:11	0.25	93	hours	EHTR-FM
	3	24-MAY-19 12:00	28-MAY-19 09:21	0.25	93	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour	2	24-MAY-19 14:00	28-MAY-19 13:00	3	4	days	EHTL
	3	24-MAY-19 12:00	28-MAY-19 13:00	3	4	days	EHTL
Nitrate in Water by IC (Low Level)	2	24-MAY-19 14:00	28-MAY-19 09:07	3	4	days	EHTL
	3	24-MAY-19 12:00	28-MAY-19 09:07	3	4	days	EHTL
Nitrite in Water by IC (Low Level)	2	24-MAY-19 14:00	28-MAY-19 09:07	3	4	days	EHTL
	3	24-MAY-19 12:00	28-MAY-19 09:07	3	4	days	EHTL

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.

Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2279796 were received on 26-MAY-19 20:00.

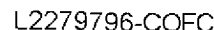
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



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COC Number: 17 -

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REFER TO BACK PAGE FOR ALLOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 CONT



CASSIAR GEOSCIENCE CONSULTING LTD
ATTN: Cody Cameron
10628 Hislop Road
Telkwa BC V0J 2X1

Date Received: 03-JUN-19
Report Date: 08-JUL-19 11:56 (MT)
Version: FINAL REV. 2

Client Phone: 778-378-1716

Certificate of Analysis

Lab Work Order #: L2284066
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 17-830140
Legal Site Desc:

Comments: ADDITIONAL 04-JUL-19 10:59

Carla Fuginski
Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2284066-1 Water 29-MAY-19 14:00 19-18	L2284066-2 Water 29-MAY-19 14:00 FIELD BLANK	L2284066-3 Water 28-MAY-19 13:00 19-34S	L2284066-4 Water 29-MAY-19 12:00 DUPLICATE	
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	7.0	<5.0	16.3	6.7	
	Conductivity (uS/cm)	634	<2.0	805	634	
	Hardness (as CaCO3) (mg/L)	153	<0.50	17.4	154	
	pH (pH)	8.29	5.43	8.65	8.30	
	Total Suspended Solids (mg/L)	405	<3.0	189	410	
	Total Dissolved Solids (mg/L)	433	<10	620	433	
	Turbidity (NTU)	201	<0.10	194	197	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<1.0	1.4	<1.0	<1.0	
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	223	<1.0	389	223	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	20.2	1.6	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Alkalinity, Total (as CaCO3) (mg/L)	223	<1.0	410	225	
	Ammonia, Total (as N) (mg/L)	0.0354	<0.0050	0.153	0.0342	
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.25 ^{DLDS}	<0.050	
	Chloride (Cl) (mg/L)	6.39	<0.50	7.7	6.75	
	Fluoride (F) (mg/L)	0.275	<0.020	1.14	0.288	
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.025 ^{DLDS}	<0.0050	
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0050 ^{DLDS}	<0.0010	
	Total Nitrogen (mg/L)	0.532	<0.030	0.274	0.558	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	0.0106	<0.0010	
	Phosphorus (P)-Total Dissolved (mg/L)	0.0125	<0.0020	0.0522	0.0106	
	Phosphorus (P)-Total (mg/L)	0.202	<0.0020	0.120	0.236	
	Sulfate (SO4) (mg/L)	94.5	<0.30	27.0	95.1	
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	106	<0.50	14.5	98.9	
	Total Organic Carbon (mg/L)	91.0	<0.50 ^{RRV}	14.5	96.7	
Total Metals	Aluminum (Al)-Total (mg/L)	8.38	0.0059	4.05	3.87	
	Antimony (Sb)-Total (mg/L)	0.00117	<0.00050	<0.00050	0.00102	
	Arsenic (As)-Total (mg/L)	0.00701	<0.00050	0.00666	0.00475	
	Barium (Ba)-Total (mg/L)	0.160	<0.020	0.075	0.101	
	Beryllium (Be)-Total (mg/L)	0.00038	<0.00010	0.00049	0.00017	
	Boron (B)-Total (mg/L)	<0.10	<0.10	0.24	<0.10	
	Cadmium (Cd)-Total (mg/L)	0.000173	<0.0000050	0.0000224	0.0000937	
	Calcium (Ca)-Total (mg/L)	44.0	<0.10	9.65	38.7	
	Chromium (Cr)-Total (mg/L)	0.0091	<0.0010	0.0027	0.0040	
	Cobalt (Co)-Total (mg/L)	0.00624	<0.00030	0.00398	0.00329	
	Copper (Cu)-Total (mg/L)	0.0243	<0.0010	0.0066	0.0112	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2284066-1 Water 29-MAY-19 14:00 19-18	L2284066-2 Water 29-MAY-19 14:00 FIELD BLANK	L2284066-3 Water 28-MAY-19 13:00 19-34S	L2284066-4 Water 29-MAY-19 12:00 DUPLICATE	
Grouping	Analyte					
WATER						
Total Metals	Iron (Fe)-Total (mg/L)	10.9	<0.030	6.37	4.90	
	Lead (Pb)-Total (mg/L)	0.00472	<0.00050	0.00400	0.00205	
	Lithium (Li)-Total (mg/L)	0.0130	<0.0010	0.0162	0.0090	
	Magnesium (Mg)-Total (mg/L)	13.8	<0.10	2.75	12.1	
	Manganese (Mn)-Total (mg/L)	0.998	<0.00030	0.122	0.836	
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	0.0000300	
	Molybdenum (Mo)-Total (mg/L)	0.0101	<0.0010	0.0175	0.0102	
	Nickel (Ni)-Total (mg/L)	0.0117	<0.0010	0.0043	0.0060	
	Potassium (K)-Total (mg/L)	3.5	<2.0	2.4	3.2	
	Selenium (Se)-Total (mg/L)	0.000227	<0.000050	0.000112	0.000160	
	Silver (Ag)-Total (mg/L)	0.000061	<0.000020 ^{RRV}	<0.000020	0.000026	
	Sodium (Na)-Total (mg/L)	84.0	2.2	181	86.9	
	Thallium (Tl)-Total (mg/L)	0.000080	<0.000010	0.000024	0.000034	
	Tin (Sn)-Total (mg/L)	0.00055	<0.00050	<0.00050	<0.00050	
	Titanium (Ti)-Total (mg/L)	0.085	<0.010	<0.010	0.060	
	Uranium (U)-Total (mg/L)	0.00237	<0.00020	0.00108	0.00168	
	Vanadium (V)-Total (mg/L)	0.0164	<0.00050	0.00638	0.00762	
	Zinc (Zn)-Total (mg/L)	0.0433	<0.0050	0.0167	0.0229	
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)	0.0059	<0.0050	2.52	0.0071	
	Antimony (Sb)-Dissolved (mg/L)	0.00111	<0.00050	<0.00050	0.00115	
	Arsenic (As)-Dissolved (mg/L)	0.00348	<0.00050	0.00253	0.00334	
	Barium (Ba)-Dissolved (mg/L)	0.048	<0.020	0.027	0.045	
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10	0.26	<0.10	
	Cadmium (Cd)-Dissolved (mg/L)	<0.000015 ^{DLM}	<0.0000050	<0.000020 ^{DLM}	<0.000015 ^{DLM}	
	Calcium (Ca)-Dissolved (mg/L)	42.3	<0.10	4.71	43.1	
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Cobalt (Co)-Dissolved (mg/L)	0.00073	<0.00030	0.00070	0.00080	
	Copper (Cu)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Iron (Fe)-Dissolved (mg/L)	0.121	<0.030	0.572	0.220	
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Lithium (Li)-Dissolved (mg/L)	0.0093	<0.0010	0.0169	0.0095	
	Magnesium (Mg)-Dissolved (mg/L)	11.4	<0.10	1.38	11.3	
	Manganese (Mn)-Dissolved (mg/L)	0.738	<0.00010	0.0312	0.749	
	Mercury (Hg)-Dissolved (mg/L)	<0.000050 ^{DLM}	<0.0000050	<0.0000050	<0.0000050	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2284066-1 Water 29-MAY-19 14:00 19-18	L2284066-2 Water 29-MAY-19 14:00 FIELD BLANK	L2284066-3 Water 28-MAY-19 13:00 19-34S	L2284066-4 Water 29-MAY-19 12:00 DUPLICATE	
Grouping	Analyte					
WATER						
Dissolved Metals	Molybdenum (Mo)-Dissolved (mg/L)	0.0122	<0.0010	0.0206	0.0128	
	Nickel (Ni)-Dissolved (mg/L)	0.0012	<0.0010	<0.0010	0.0013	
	Potassium (K)-Dissolved (mg/L)	2.1	<2.0	2.1	2.1	
	Selenium (Se)-Dissolved (mg/L)	0.000228	<0.000050	0.000076	0.000210	
	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	
	Sodium (Na)-Dissolved (mg/L)	93.9	<2.0	222	94.9	
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
	Tin (Sn)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	0.071 ^{DTMF}	<0.010	
	Uranium (U)-Dissolved (mg/L)	0.00219	<0.00020	0.00058	0.00210	
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	0.00255	<0.00050	
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
Speciated Metals	Hexavalent Chromium (mg/L)	<0.00050		<0.00050	<0.00050	
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Acridine (mg/L)	<0.000010	<0.000010	<0.000030 ^{DLCI}	<0.000010	
	Anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000030 ^{DLCI}	<0.000010	
	Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050	<0.000060 ^{DLCI}	<0.0000050	
	Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	<0.000015	<0.000015	
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Chrysene (mg/L)	<0.000010	<0.000010	<0.000030 ^{DLCI}	<0.000010	
	Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
	Fluoranthene (mg/L)	<0.000010	<0.000010	0.000021	<0.000010	
	Fluorene (mg/L)	<0.000010	<0.000010	0.000069	<0.000010	
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	1-Methylnaphthalene (mg/L)	<0.000050	<0.000050	0.000507	<0.000050	
	2-Methylnaphthalene (mg/L)	<0.000050	<0.000050	0.000630	<0.000050	
	Naphthalene (mg/L)	<0.000050	<0.000050	0.000633	<0.000050	
	Phenanthrene (mg/L)	<0.000020	<0.000020	0.000298	0.000030	
	Pyrene (mg/L)	<0.000010	<0.000010	0.000038	0.000010	
	Quinoline (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Surrogate: Acridine d9 (%)	90.1	104.4	93.5	69.1	
	Surrogate: Chrysene d12 (%)	105.3	114.7	106.8	110.2	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2284066-1	L2284066-2	L2284066-3	L2284066-4	
		Description	Water	Water	Water	Water	
		Sampled Date	29-MAY-19	29-MAY-19	28-MAY-19	29-MAY-19	
		Sampled Time	14:00	14:00	13:00	12:00	
		Client ID	19-18	FIELD BLANK	19-34S	DUPLICATE	
Grouping	Analyte						
WATER							
Polycyclic Aromatic Hydrocarbons	Surrogate: Naphthalene d8 (%)		98.8	100.9	101.2	101.6	
	Surrogate: Phenanthrene d10 (%)		110.0	112.4	109.6	114.2	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Selenium (Se)-Total	DUP-H	L2284066-2
Matrix Spike	Dissolved Organic Carbon	MS-B	L2284066-1, -2, -4
Matrix Spike	Total Organic Carbon	MS-B	L2284066-1, -2, -4
Matrix Spike	Chloride (Cl)	MS-B	L2284066-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2284066-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2284066-2
Matrix Spike	Boron (B)-Dissolved	MS-B	L2284066-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2284066-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2284066-2
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2284066-1, -2, -3, -4
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2284066-2
Matrix Spike	Potassium (K)-Dissolved	MS-B	L2284066-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2284066-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2284066-2
Matrix Spike	Uranium (U)-Dissolved	MS-B	L2284066-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Total	MS-B	L2284066-2
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2284066-2
Matrix Spike	Manganese (Mn)-Total	MS-B	L2284066-2
Matrix Spike	Potassium (K)-Total	MS-B	L2284066-2
Matrix Spike	Sodium (Na)-Total	MS-B	L2284066-1, -3, -4
Matrix Spike	Sodium (Na)-Total	MS-B	L2284066-2
Matrix Spike	Total Nitrogen	MS-B	L2284066-1, -2, -3, -4
Matrix Spike	Sulfate (SO4)	MS-B	L2284066-1, -2, -3, -4

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
DTMF	Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310B
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			

Reference Information

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method.			
Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.			
Concurrent measurement of sample pH is recommended.			
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)	APHA 3500-Cr C (Ion Chromatography)
This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.			
Results are based on an un-filtered, field-preserved sample.			
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
F-IC-N-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)
Water samples are filtered (0.45 µm), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 µm), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
N-T-COL-VA	Water	Total Nitrogen in water by Colour	APHA4500-P(J)/NEMI9171/USGS03-4174
This analysis is carried out using procedures adapted from APHA Method 4500-P (J) "Persulphate Method for Simultaneous Determination of Total Nitrogen and Total Phosphorus" and National Environmental Methods Index - Nemi method 5735.			
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			

Reference Information

P-T-PRES-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

P-TD-PRES-COL-VA Water Total Dissolved P in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

PAH-ME-MS-VA Water PAHs in Water EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

SO4-IC-N-VA Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location

ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-830140

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2284066

Report Date: 08-JUL-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CARBONS-TOC-VA	Water							
Batch R4661740								
WG3070279-2 LCS								
Total Organic Carbon			99.4		%		80-120	07-JUN-19
WG3070279-1 MB								
Total Organic Carbon			<0.50		mg/L		0.5	07-JUN-19
WG3070279-4 MS		L2284066-2						
Total Organic Carbon			98.3		%		70-130	07-JUN-19
Batch R4662175								
WG3071537-4 LCS								
Total Organic Carbon			104.9		%		80-120	08-JUN-19
WG3071537-3 MB								
Total Organic Carbon			<0.50		mg/L		0.5	08-JUN-19
Batch R4662865								
WG3072027-10 LCS								
Total Organic Carbon			105.8		%		80-120	09-JUN-19
WG3072027-9 MB								
Total Organic Carbon			<0.50		mg/L		0.5	09-JUN-19
CL-IC-N-VA	Water							
Batch R4657147								
WG3066282-2 LCS								
Chloride (Cl)			99.0		%		90-110	04-JUN-19
WG3066282-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	04-JUN-19
COLOUR-TRUE-VA	Water							
Batch R4654633								
WG3066275-2 CRM		VA-COLOUR-T						
Colour, True			98.2		%		85-115	04-JUN-19
WG3066275-1 MB								
Colour, True			<5.0		CU		5	04-JUN-19
CR-CR6-ED	Water							
Batch R4695405								
WG3097503-2 LCS								
Hexavalent Chromium			98.5		%		80-120	05-JUL-19
WG3097503-1 MB								
Hexavalent Chromium			<0.00050		mg/L		0.0005	05-JUL-19
EC-PCT-VA	Water							

Quality Control Report

Workorder: L2284066

Report Date: 08-JUL-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA		Water						
Batch	R4656513							
WG3066195-4	CRM	VA-EC-PCT-CONTROL						
Conductivity			102.1		%		90-110	04-JUN-19
WG3066195-1	MB							
Conductivity			<2.0		uS/cm		2	04-JUN-19
F-IC-N-VA		Water						
Batch	R4657147							
WG3066282-2	LCS							
Fluoride (F)			101.7		%		90-110	04-JUN-19
WG3066282-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	04-JUN-19
HG-D-CVAA-VA		Water						
Batch	R4659877							
WG3067414-30	LCS							
Mercury (Hg)-Dissolved			92.0		%		80-120	06-JUN-19
WG3067414-29	MB							
Mercury (Hg)-Dissolved			<0.000005C		mg/L		0.000005	06-JUN-19
HG-T-CVAA-VA		Water						
Batch	R4658869							
WG3067860-2	LCS							
Mercury (Hg)-Total			95.3		%		80-120	05-JUN-19
WG3067860-1	MB							
Mercury (Hg)-Total			<0.000005C		mg/L		0.000005	05-JUN-19
MET-D-CCMS-VA		Water						
Batch	R4659067							
WG3066806-2	LCS							
Aluminum (Al)-Dissolved			97.5		%		80-120	05-JUN-19
Antimony (Sb)-Dissolved			95.2		%		80-120	05-JUN-19
Arsenic (As)-Dissolved			93.9		%		80-120	05-JUN-19
Barium (Ba)-Dissolved			99.7		%		80-120	05-JUN-19
Beryllium (Be)-Dissolved			94.2		%		80-120	05-JUN-19
Boron (B)-Dissolved			94.5		%		80-120	05-JUN-19
Cadmium (Cd)-Dissolved			96.9		%		80-120	05-JUN-19
Calcium (Ca)-Dissolved			98.1		%		80-120	05-JUN-19
Chromium (Cr)-Dissolved			97.7		%		80-120	05-JUN-19
Cobalt (Co)-Dissolved			96.3		%		80-120	05-JUN-19
Copper (Cu)-Dissolved			94.9		%		80-120	05-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA								
Water								
Batch	R4659067							
WG3066806-2	LCS							
Iron (Fe)-Dissolved			89.7		%		80-120	05-JUN-19
Lead (Pb)-Dissolved			96.2		%		80-120	05-JUN-19
Lithium (Li)-Dissolved			95.4		%		80-120	05-JUN-19
Magnesium (Mg)-Dissolved			102.1		%		80-120	05-JUN-19
Manganese (Mn)-Dissolved			98.4		%		80-120	05-JUN-19
Molybdenum (Mo)-Dissolved			105.5		%		80-120	05-JUN-19
Nickel (Ni)-Dissolved			95.7		%		80-120	05-JUN-19
Potassium (K)-Dissolved			98.2		%		80-120	05-JUN-19
Selenium (Se)-Dissolved			99.3		%		80-120	05-JUN-19
Silver (Ag)-Dissolved			96.1		%		80-120	05-JUN-19
Sodium (Na)-Dissolved			108.9		%		80-120	05-JUN-19
Thallium (Tl)-Dissolved			96.3		%		80-120	05-JUN-19
Tin (Sn)-Dissolved			95.6		%		80-120	05-JUN-19
Titanium (Ti)-Dissolved			97.4		%		80-120	05-JUN-19
Uranium (U)-Dissolved			95.8		%		80-120	05-JUN-19
Vanadium (V)-Dissolved			98.9		%		80-120	05-JUN-19
Zinc (Zn)-Dissolved			94.2		%		80-120	05-JUN-19
WG3066806-1	MB	NP						
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	05-JUN-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	05-JUN-19
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	05-JUN-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	05-JUN-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	05-JUN-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	05-JUN-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	05-JUN-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	05-JUN-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	05-JUN-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA		Water						
Batch	R4659067							
WG3066806-1	MB	NP						
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	05-JUN-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	05-JUN-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	05-JUN-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	05-JUN-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	05-JUN-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	05-JUN-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	05-JUN-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	05-JUN-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	05-JUN-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	05-JUN-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	05-JUN-19
Batch	R4659128							
WG3068453-2	LCS							
Aluminum (Al)-Dissolved			98.9		%		80-120	05-JUN-19
Antimony (Sb)-Dissolved			103.0		%		80-120	05-JUN-19
Arsenic (As)-Dissolved			102.0		%		80-120	05-JUN-19
Barium (Ba)-Dissolved			104.2		%		80-120	05-JUN-19
Beryllium (Be)-Dissolved			96.8		%		80-120	05-JUN-19
Boron (B)-Dissolved			95.1		%		80-120	05-JUN-19
Cadmium (Cd)-Dissolved			103.6		%		80-120	05-JUN-19
Calcium (Ca)-Dissolved			97.6		%		80-120	05-JUN-19
Chromium (Cr)-Dissolved			101.8		%		80-120	05-JUN-19
Cobalt (Co)-Dissolved			101.6		%		80-120	05-JUN-19
Copper (Cu)-Dissolved			99.2		%		80-120	05-JUN-19
Iron (Fe)-Dissolved			100.6		%		80-120	05-JUN-19
Lead (Pb)-Dissolved			108.7		%		80-120	05-JUN-19
Lithium (Li)-Dissolved			97.4		%		80-120	05-JUN-19
Magnesium (Mg)-Dissolved			106.4		%		80-120	05-JUN-19
Manganese (Mn)-Dissolved			101.4		%		80-120	05-JUN-19
Molybdenum (Mo)-Dissolved			107.8		%		80-120	05-JUN-19
Nickel (Ni)-Dissolved			99.7		%		80-120	05-JUN-19
Potassium (K)-Dissolved			103.5		%		80-120	05-JUN-19
Selenium (Se)-Dissolved			107.6		%		80-120	05-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	Water							
Batch	R4659128							
WG3068453-2 LCS								
Silver (Ag)-Dissolved			104.7		%		80-120	05-JUN-19
Sodium (Na)-Dissolved			106.7		%		80-120	05-JUN-19
Thallium (Tl)-Dissolved			107.2		%		80-120	05-JUN-19
Tin (Sn)-Dissolved			102.7		%		80-120	05-JUN-19
Titanium (Ti)-Dissolved			99.9		%		80-120	05-JUN-19
Uranium (U)-Dissolved			109.0		%		80-120	05-JUN-19
Vanadium (V)-Dissolved			104.3		%		80-120	05-JUN-19
Zinc (Zn)-Dissolved			103.5		%		80-120	05-JUN-19
WG3068453-1 MB		NP						
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	05-JUN-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	05-JUN-19
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	05-JUN-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	05-JUN-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	05-JUN-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	05-JUN-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	05-JUN-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	05-JUN-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	05-JUN-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	05-JUN-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	05-JUN-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	05-JUN-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	05-JUN-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	05-JUN-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	05-JUN-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	05-JUN-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	05-JUN-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	05-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	Water							
Batch R4659128								
WG3068453-1 MB		NP						
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	05-JUN-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	05-JUN-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	05-JUN-19
MET-T-CCMS-VA	Water							
Batch R4658226								
WG3066977-2 LCS								
Aluminum (Al)-Total			106.0		%		80-120	04-JUN-19
Antimony (Sb)-Total			101.3		%		80-120	04-JUN-19
Arsenic (As)-Total			98.5		%		80-120	04-JUN-19
Barium (Ba)-Total			101.6		%		80-120	04-JUN-19
Beryllium (Be)-Total			95.7		%		80-120	04-JUN-19
Boron (B)-Total			98.6		%		80-120	04-JUN-19
Cadmium (Cd)-Total			99.0		%		80-120	04-JUN-19
Calcium (Ca)-Total			99.5		%		80-120	04-JUN-19
Chromium (Cr)-Total			96.6		%		80-120	04-JUN-19
Cobalt (Co)-Total			96.2		%		80-120	04-JUN-19
Copper (Cu)-Total			94.7		%		80-120	04-JUN-19
Iron (Fe)-Total			93.0		%		80-120	04-JUN-19
Lead (Pb)-Total			95.4		%		80-120	04-JUN-19
Lithium (Li)-Total			94.9		%		80-120	04-JUN-19
Magnesium (Mg)-Total			100.0		%		80-120	04-JUN-19
Manganese (Mn)-Total			100.2		%		80-120	04-JUN-19
Molybdenum (Mo)-Total			103.4		%		80-120	04-JUN-19
Nickel (Ni)-Total			96.1		%		80-120	04-JUN-19
Potassium (K)-Total			101.2		%		80-120	04-JUN-19
Selenium (Se)-Total			96.9		%		80-120	04-JUN-19
Silver (Ag)-Total			97.4		%		80-120	04-JUN-19
Sodium (Na)-Total			100.6		%		80-120	04-JUN-19
Thallium (Tl)-Total			98.7		%		80-120	04-JUN-19
Tin (Sn)-Total			102.0		%		80-120	04-JUN-19
Titanium (Ti)-Total			94.4		%		80-120	04-JUN-19
Uranium (U)-Total			88.6		%		80-120	04-JUN-19
Vanadium (V)-Total			99.99		%		80-120	04-JUN-19
Zinc (Zn)-Total			95.3		%		80-120	04-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch R4658226								
WG3066977-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	04-JUN-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	04-JUN-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	04-JUN-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	04-JUN-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	04-JUN-19
Boron (B)-Total			<0.010		mg/L		0.01	04-JUN-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	04-JUN-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	04-JUN-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	04-JUN-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	04-JUN-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	04-JUN-19
Iron (Fe)-Total			<0.010		mg/L		0.01	04-JUN-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	04-JUN-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	04-JUN-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	04-JUN-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	04-JUN-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	04-JUN-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	04-JUN-19
Potassium (K)-Total			<0.050		mg/L		0.05	04-JUN-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	04-JUN-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	04-JUN-19
Sodium (Na)-Total			<0.050		mg/L		0.05	04-JUN-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	04-JUN-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	04-JUN-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	04-JUN-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	04-JUN-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	04-JUN-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	04-JUN-19
Batch R4659128								
WG3067704-2 LCS								
Aluminum (Al)-Total			101.4		%		80-120	05-JUN-19
Antimony (Sb)-Total			103.0		%		80-120	05-JUN-19
Arsenic (As)-Total			96.6		%		80-120	05-JUN-19
Barium (Ba)-Total			101.4		%		80-120	05-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R4659128							
WG3067704-2	LCS							
Beryllium (Be)-Total			94.0		%		80-120	05-JUN-19
Boron (B)-Total			92.1		%		80-120	05-JUN-19
Cadmium (Cd)-Total			99.9		%		80-120	05-JUN-19
Calcium (Ca)-Total			95.2		%		80-120	05-JUN-19
Chromium (Cr)-Total			95.5		%		80-120	05-JUN-19
Cobalt (Co)-Total			98.4		%		80-120	05-JUN-19
Copper (Cu)-Total			95.7		%		80-120	05-JUN-19
Iron (Fe)-Total			97.1		%		80-120	05-JUN-19
Lead (Pb)-Total			100.5		%		80-120	05-JUN-19
Lithium (Li)-Total			95.1		%		80-120	05-JUN-19
Magnesium (Mg)-Total			99.5		%		80-120	05-JUN-19
Manganese (Mn)-Total			96.4		%		80-120	05-JUN-19
Molybdenum (Mo)-Total			103.1		%		80-120	05-JUN-19
Nickel (Ni)-Total			95.0		%		80-120	05-JUN-19
Potassium (K)-Total			100.9		%		80-120	05-JUN-19
Selenium (Se)-Total			97.5		%		80-120	05-JUN-19
Silver (Ag)-Total			100.5		%		80-120	05-JUN-19
Sodium (Na)-Total			98.2		%		80-120	05-JUN-19
Thallium (Tl)-Total			99.4		%		80-120	05-JUN-19
Tin (Sn)-Total			99.8		%		80-120	05-JUN-19
Titanium (Ti)-Total			92.6		%		80-120	05-JUN-19
Uranium (U)-Total			103.6		%		80-120	05-JUN-19
Vanadium (V)-Total			99.6		%		80-120	05-JUN-19
Zinc (Zn)-Total			96.9		%		80-120	05-JUN-19
WG3067704-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	05-JUN-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	05-JUN-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	05-JUN-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	05-JUN-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	05-JUN-19
Boron (B)-Total			<0.010		mg/L		0.01	05-JUN-19
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	05-JUN-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	05-JUN-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	05-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-ME-MS-VA		Water						
Batch	R4653616							
WG3066457-2	LCS							
Acenaphthene			111.9		%		60-130	04-JUN-19
Acenaphthylene			113.4		%		60-130	04-JUN-19
Acridine			111.4		%		60-130	04-JUN-19
Anthracene			122.2		%		60-130	04-JUN-19
Benz(a)anthracene			123.1		%		60-130	04-JUN-19
Benzo(a)pyrene			104.8		%		60-130	04-JUN-19
Benzo(b&j)fluoranthene			117.8		%		60-130	04-JUN-19
Benzo(g,h,i)perylene			117.0		%		60-130	04-JUN-19
Benzo(k)fluoranthene			119.2		%		60-130	04-JUN-19
Chrysene			113.0		%		60-130	04-JUN-19
Dibenz(a,h)anthracene			118.4		%		60-130	04-JUN-19
Fluoranthene			120.6		%		60-130	04-JUN-19
Fluorene			104.9		%		60-130	04-JUN-19
Indeno(1,2,3-c,d)pyrene			121.0		%		60-130	04-JUN-19
1-Methylnaphthalene			110.6		%		60-130	04-JUN-19
2-Methylnaphthalene			106.9		%		60-130	04-JUN-19
Naphthalene			105.7		%		50-130	04-JUN-19
Phenanthrene			122.2		%		60-130	04-JUN-19
Pyrene			122.8		%		60-130	04-JUN-19
Quinoline			119.5		%		60-130	04-JUN-19
WG3066457-1	MB							
Acenaphthene			<0.000010		mg/L		0.00001	04-JUN-19
Acenaphthylene			<0.000010		mg/L		0.00001	04-JUN-19
Acridine			<0.000010		mg/L		0.00001	04-JUN-19
Anthracene			<0.000010		mg/L		0.00001	04-JUN-19
Benz(a)anthracene			<0.000010		mg/L		0.00001	04-JUN-19
Benzo(a)pyrene			<0.000005C		mg/L		0.000005	04-JUN-19
Benzo(b&j)fluoranthene			<0.000010		mg/L		0.00001	04-JUN-19
Benzo(g,h,i)perylene			<0.000010		mg/L		0.00001	04-JUN-19
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	04-JUN-19
Chrysene			<0.000010		mg/L		0.00001	04-JUN-19
Dibenz(a,h)anthracene			<0.000005C		mg/L		0.000005	04-JUN-19
Fluoranthene			<0.000010		mg/L		0.00001	04-JUN-19
Fluorene			<0.000010		mg/L		0.00001	04-JUN-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-ME-MS-VA		Water						
Batch	R4653616							
WG3066457-1 MB								
Indeno(1,2,3-c,d)pyrene			<0.000010		mg/L		0.00001	04-JUN-19
1-Methylnaphthalene			<0.000050		mg/L		0.00005	04-JUN-19
2-Methylnaphthalene			<0.000050		mg/L		0.00005	04-JUN-19
Naphthalene			<0.000050		mg/L		0.00005	04-JUN-19
Phenanthrene			<0.000020		mg/L		0.00002	04-JUN-19
Pyrene			<0.000010		mg/L		0.00001	04-JUN-19
Quinoline			<0.000050		mg/L		0.00005	04-JUN-19
Surrogate: Acridine d9			110.6		%		60-130	04-JUN-19
Surrogate: Chrysene d12			106.9		%		60-130	04-JUN-19
Surrogate: Naphthalene d8			108.4		%		50-130	04-JUN-19
Surrogate: Phenanthrene d10			125.4		%		60-130	04-JUN-19
PH-PCT-VA		Water						
Batch	R4656513							
WG3066195-2 CRM		VA-PH7-BUF						
pH			6.98		pH		6.9-7.1	04-JUN-19
PO4-DO-COL-VA		Water						
Batch	R4656416							
WG3066323-2 CRM		VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			105.4		%		80-120	04-JUN-19
WG3066323-3 DUP		L2284066-4						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	04-JUN-19
WG3066323-1 MB								
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	04-JUN-19
SO4-IC-N-VA		Water						
Batch	R4657147							
WG3066282-2 LCS								
Sulfate (SO4)			100.1		%		90-110	04-JUN-19
WG3066282-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	04-JUN-19
Batch	R4662765							
WG3072026-3 DUP		L2284066-2						
Sulfate (SO4)		<0.30	<0.30	RPD-NA	mg/L	N/A	20	09-JUN-19
WG3072026-2 LCS								
Sulfate (SO4)			101.5		%		90-110	09-JUN-19
WG3072026-1 MB								

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-VA								
Batch R4662765								
WG3072026-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	09-JUN-19
TDS-VA								
Batch R4659445								
WG3067231-8	LCS							
Total Dissolved Solids			99.7		%		85-115	04-JUN-19
WG3067231-7	MB							
Total Dissolved Solids			<10		mg/L		10	04-JUN-19
TSS-VA								
Batch R4658871								
WG3066852-5	LCS							
Total Suspended Solids			93.5		%		85-115	04-JUN-19
WG3066852-4	MB							
Total Suspended Solids			<3.0		mg/L		3	04-JUN-19
Batch R4660062								
WG3068260-5	LCS							
Total Suspended Solids			100.1		%		85-115	05-JUN-19
WG3068260-4	MB							
Total Suspended Solids			<3.0		mg/L		3	05-JUN-19
TURBIDITY-VA								
Batch R4662425								
WG3072281-2	CRM	VA-FORM-40						
Turbidity			106.8		%		85-115	10-JUN-19
WG3072281-3	DUP	L2284066-1						
Turbidity		201	221		NTU	9.5	15	10-JUN-19
WG3072281-1	MB							
Turbidity			<0.10		NTU		0.1	10-JUN-19

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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Colour (True) by Spectrometer							
	1	29-MAY-19 14:00	04-JUN-19 00:27	3	5	days	EHTR
	2	29-MAY-19 14:00	04-JUN-19 00:27	3	5	days	EHTR
	3	28-MAY-19 13:00	04-JUN-19 00:27	3	6	days	EHTR
	4	29-MAY-19 12:00	04-JUN-19 00:27	3	6	days	EHTR
Turbidity by Meter							
	1	29-MAY-19 14:00	10-JUN-19 06:56	3	12	days	EHTR
	2	29-MAY-19 14:00	10-JUN-19 06:56	3	12	days	EHTR
	3	28-MAY-19 13:00	10-JUN-19 06:56	3	13	days	EHTR
	4	29-MAY-19 12:00	10-JUN-19 06:56	3	12	days	EHTR
pH by Meter (Automated)							
	1	29-MAY-19 14:00	04-JUN-19 11:05	0.25	141	hours	EHTR-FM
	2	29-MAY-19 14:00	04-JUN-19 11:05	0.25	141	hours	EHTR-FM
	3	28-MAY-19 13:00	04-JUN-19 11:05	0.25	166	hours	EHTR-FM
	4	29-MAY-19 12:00	04-JUN-19 11:05	0.25	143	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour							
	1	29-MAY-19 14:00	04-JUN-19 10:33	3	6	days	EHTR
	2	29-MAY-19 14:00	04-JUN-19 10:33	3	6	days	EHTR
	3	28-MAY-19 13:00	04-JUN-19 10:33	3	7	days	EHTR
	4	29-MAY-19 12:00	04-JUN-19 10:33	3	6	days	EHTR
Nitrate in Water by IC (Low Level)							
	1	29-MAY-19 14:00	04-JUN-19 08:12	3	6	days	EHTR
	2	29-MAY-19 14:00	04-JUN-19 08:12	3	6	days	EHTR
	3	28-MAY-19 13:00	04-JUN-19 08:12	3	7	days	EHTR
	4	29-MAY-19 12:00	04-JUN-19 08:12	3	6	days	EHTR
Nitrite in Water by IC (Low Level)							
	1	29-MAY-19 14:00	04-JUN-19 08:12	3	6	days	EHTR
	2	29-MAY-19 14:00	04-JUN-19 08:12	3	6	days	EHTR
	3	28-MAY-19 13:00	04-JUN-19 08:12	3	7	days	EHTR
	4	29-MAY-19 12:00	04-JUN-19 08:12	3	6	days	EHTR
Speciated Metals							
Chromium, Hexavalent (Cr +6)							
	1	29-MAY-19 14:00	05-JUL-19 08:00	28	37	days	EHT
	3	28-MAY-19 13:00	05-JUL-19 08:00	28	38	days	EHT
	4	29-MAY-19 12:00	05-JUL-19 08:00	28	37	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2284066 were received on 03-JUN-19 11:30.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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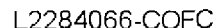
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



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REFER TO BACK PAGE FOR AIS LOCATIONS AND SAMPLING INFORMATION

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LINE 2015 6000



CASSIAR GEOSCIENCE CONSULTING LTD
ATTN: Cody Cameron
10628 Hislop Road
Telkwa BC V0J 2X1

Date Received: 06-JUN-19
Report Date: 25-JUN-19 15:42 (MT)
Version: FINAL REV. 2

Client Phone: 778-378-1716

Certificate of Analysis

Lab Work Order #: L2287159
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 17-830130
Legal Site Desc:

Comments: ADDITIONAL 19-JUN-19 12:53

Carla Fuginski
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2287159-1 Water 05-JUN-19 15:00 19-22S	L2287159-2 Water 04-JUN-19 14:00 W1 DEEP	L2287159-3 Water 05-JUN-19 13:00 T96R-34-87	L2287159-4 Water 05-JUN-19 15:30 T0B96-11-04	
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	<5.0	8.2	6.3	<5.0	
	Conductivity (uS/cm)	525	1040	1690	587	
	Hardness (as CaCO3) (mg/L)	114	4.03	39.3	356	
	pH (pH)	8.46	8.97	8.61	8.36	
	Total Suspended Solids (mg/L)	33.3	53.4	9.9	3.5	
	Total Dissolved Solids (mg/L)	352	673	1090	344	
	Turbidity (NTU)	30.1	77.3	10.6	6.31	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	229	473	969	314	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	7.8	49.8	75.8	2.6	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Alkalinity, Total (as CaCO3) (mg/L)	237	523	1050	317	
	Ammonia, Total (as N) (mg/L)	0.0088	0.114	0.471	<0.0050	
	Bromide (Br) (mg/L)	<0.050	<0.25 ^{DLDS}	<0.25 ^{DLDS}	<0.050	
	Chloride (Cl) (mg/L)	3.02	<2.5 ^{DLDS}	<2.5 ^{DLDS}	0.50	
	Fluoride (F) (mg/L)	0.490	4.72	1.36	0.107	
	Nitrate (as N) (mg/L)	<0.0050	<0.025 ^{DLDS}	<0.025 ^{DLDS}	0.141	
	Nitrite (as N) (mg/L)	<0.0010	<0.0050 ^{DLDS}	<0.0050 ^{DLDS}	0.0016	
	Total Nitrogen (mg/L)	0.217	0.442	0.481	0.276	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.062	<0.0010		
	Phosphorus (P)-Total Dissolved (mg/L)	0.0036	0.0596	0.0066	0.0029	
	Phosphorus (P)-Total (mg/L)	0.0328	0.0901	0.0271	0.0210	
	Sulfate (SO4) (mg/L)	50.8	46.9	<1.5 ^{DLDS}	24.8	
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	6.38	4.44	1.57		
	Total Organic Carbon (mg/L)	9.12	6.19	2.10	1.88	
Total Metals	Aluminum (Al)-Total (mg/L)	0.544	1.36	0.329	0.410	
	Antimony (Sb)-Total (mg/L)	0.00152	<0.00050	<0.00050	<0.00050	
	Arsenic (As)-Total (mg/L)	0.00163	0.00198	<0.00050	<0.00050	
	Barium (Ba)-Total (mg/L)	0.098	0.073	0.995	0.081	
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Boron (B)-Total (mg/L)	0.12	0.30	0.17	<0.10	
	Cadmium (Cd)-Total (mg/L)	<0.000050 ^{DLM}	0.0000521	0.0000066	0.0000559	
	Calcium (Ca)-Total (mg/L)	28.2	1.61	12.6	53.7	
	Chromium (Cr)-Total (mg/L)	0.0012	0.0017	<0.0010	<0.0010	
	Cobalt (Co)-Total (mg/L)	0.00135	0.00056	<0.00030	<0.00030	
	Copper (Cu)-Total (mg/L)	0.0042	0.0048	<0.0010	0.0016	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2287159-1 Water 05-JUN-19 15:00 19-22S	L2287159-2 Water 04-JUN-19 14:00 W1 DEEP	L2287159-3 Water 05-JUN-19 13:00 T96R-34-87	L2287159-4 Water 05-JUN-19 15:30 T0B96-11-04	
Grouping	Analyte					
WATER						
Total Metals	Iron (Fe)-Total (mg/L)	3.29	0.936	0.850	0.322	
	Lead (Pb)-Total (mg/L)	<0.00050	0.00058	<0.00050	0.00051	
	Lithium (Li)-Total (mg/L)	0.0047	0.0790	0.0478	0.0041	
	Magnesium (Mg)-Total (mg/L)	8.40	0.53	2.22	46.3	
	Manganese (Mn)-Total (mg/L)	0.228	0.0413	0.0411	0.0166	
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
	Molybdenum (Mo)-Total (mg/L)	0.0335	0.0129	<0.0010	0.0022	
	Nickel (Ni)-Total (mg/L)	0.0020	0.0012	<0.0010	<0.0010	
	Potassium (K)-Total (mg/L)	3.7	<2.0	<2.0	<2.0	
	Selenium (Se)-Total (mg/L)	0.000193	0.000072	<0.000050	0.000754	
	Silver (Ag)-Total (mg/L)	<0.000020	0.000063	<0.000020	<0.000020	
	Sodium (Na)-Total (mg/L)	84.6	247	425	17.3	
	Thallium (Tl)-Total (mg/L)	<0.000010	0.000011	<0.000010	<0.000010	
	Tin (Sn)-Total (mg/L)	0.00121	<0.00050	<0.00050	0.00096	
	Titanium (Ti)-Total (mg/L)	<0.010	0.010	<0.010	0.014	
	Uranium (U)-Total (mg/L)	0.00199	0.00090	<0.00020	0.00272	
	Vanadium (V)-Total (mg/L)	0.00258	0.00240	0.00099	0.00164	
	Zinc (Zn)-Total (mg/L)	0.0067	0.0097	<0.0050	<0.0050	
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)	0.0293	0.0166	0.108	<0.0050	
	Antimony (Sb)-Dissolved (mg/L)	0.00165	<0.00050	<0.00050	<0.00050	
	Arsenic (As)-Dissolved (mg/L)	0.00162	0.00180	<0.00050	<0.00050	
	Barium (Ba)-Dissolved (mg/L)	0.064	0.023	1.03	0.070	
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Boron (B)-Dissolved (mg/L)	0.11	0.30	0.16	<0.10	
	Cadmium (Cd)-Dissolved (mg/L)	<0.000025 ^{DLM}	<0.000010 ^{DLM}	<0.0000050	0.0000517	
	Calcium (Ca)-Dissolved (mg/L)	30.6	1.28	12.2	58.8	
	Chromium (Cr)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Cobalt (Co)-Dissolved (mg/L)	0.00055	<0.00030	<0.00030	<0.00030	
	Copper (Cu)-Dissolved (mg/L)	0.0045	<0.0010	<0.0010	0.0012	
	Iron (Fe)-Dissolved (mg/L)	0.047	<0.030	0.607	<0.030	
	Lead (Pb)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Lithium (Li)-Dissolved (mg/L)	0.0048	0.0748	0.0429	0.0039	
	Magnesium (Mg)-Dissolved (mg/L)	9.07	0.20	2.16	50.8	
	Manganese (Mn)-Dissolved (mg/L)	0.182	0.0100	0.0381	0.00158	
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2287159-1 Water 05-JUN-19 15:00 19-22S	L2287159-2 Water 04-JUN-19 14:00 W1 DEEP	L2287159-3 Water 05-JUN-19 13:00 T96R-34-87	L2287159-4 Water 05-JUN-19 15:30 T0B96-11-04	
Grouping	Analyte					
WATER						
Dissolved Metals	Molybdenum (Mo)-Dissolved (mg/L)	0.0289	0.0130	<0.0010	0.0021	
	Nickel (Ni)-Dissolved (mg/L)	0.0015	<0.0010	<0.0010	<0.0010	
	Potassium (K)-Dissolved (mg/L)	3.7	<2.0	<2.0	<2.0	
	Selenium (Se)-Dissolved (mg/L)	0.000270	0.000051	<0.000050	0.000835	
	Silver (Ag)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	
	Sodium (Na)-Dissolved (mg/L)	85.8	238	417	18.1	
	Thallium (Tl)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
	Tin (Sn)-Dissolved (mg/L)	0.00141	<0.00050	<0.00050	0.00202 ^{DTMF}	
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Uranium (U)-Dissolved (mg/L)	0.00213	0.00082	<0.00020	0.00272	
	Vanadium (V)-Dissolved (mg/L)	0.00053	<0.00050	<0.00050	0.00092	
	Zinc (Zn)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
Speciated Metals	Hexavalent Chromium (mg/L)	<0.00050 ^{DLCl}	<0.00050			
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000040 ^{DLCl}	<0.000010	<0.000010		
	Acenaphthylene (mg/L)	<0.000040 ^{DLCl}	<0.000010	<0.000010		
	Acridine (mg/L)	<0.000080 ^{DLCl}	<0.000010	<0.000010		
	Anthracene (mg/L)	<0.000070 ^{DLCl}	<0.000010	<0.000010		
	Benz(a)anthracene (mg/L)	<0.000060 ^{DLQ}	<0.000010	<0.000010		
	Benzo(a)pyrene (mg/L)	<0.000020 ^{DLCl}	<0.0000050	<0.0000050		
	Benzo(b&j)fluoranthene (mg/L)	<0.000020 ^{DLQ}	<0.000010	<0.000010		
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000022	<0.000015	<0.000015		
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010		
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010		
	Chrysene (mg/L)	<0.000070 ^{DLQ}	<0.000010	<0.000010		
	Dibenz(a,h)anthracene (mg/L)	<0.000020 ^{DLQ}	<0.0000050	<0.0000050		
	Fluoranthene (mg/L)	0.000058	<0.000010	<0.000010		
	Fluorene (mg/L)	<0.00010 ^{DLQ}	<0.000010	<0.000010		
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010		
	1-Methylnaphthalene (mg/L)	0.00197	<0.000050	<0.000050		
	2-Methylnaphthalene (mg/L)	0.00246	<0.000050	<0.000050		
	Naphthalene (mg/L)	0.00188	<0.000050	<0.000050		
	Phenanthrene (mg/L)	0.000791	<0.000020	<0.000020		
	Pyrene (mg/L)	0.000063	<0.000010	<0.000010		
	Quinoline (mg/L)	<0.000050	<0.000050	<0.000050		
	Surrogate: Acridine d9 (%)	42.2 ^{SURR-ND}	123.5	125.0		
	Surrogate: Chrysene d12 (%)	118.7	120.8	126.8		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2287159-1	L2287159-2	L2287159-3	L2287159-4	
		Description	Water	Water	Water	Water	
		Sampled Date	05-JUN-19	04-JUN-19	05-JUN-19	05-JUN-19	
		Sampled Time	15:00	14:00	13:00	15:30	
		Client ID	19-22S	W1 DEEP	T96R-34-87	T0B96-11-04	
Grouping	Analyte						
WATER							
Polycyclic Aromatic Hydrocarbons	Surrogate: Naphthalene d8 (%)		91.9	87.1	87.3		
	Surrogate: Phenanthrene d10 (%)		107.0	106.2	108.5		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Samples Listed:

Sample Number	Client Sample ID	Qualifier	Description
L2287159-4	T0B96-11-04	WSMD	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
		WSMT	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Total Organic Carbon	MS-B	L2287159-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2287159-1, -2, -3, -4
Matrix Spike	Boron (B)-Dissolved	MS-B	L2287159-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2287159-1, -2, -3, -4
Matrix Spike	Aluminum (Al)-Total	MS-B	L2287159-4
Matrix Spike	Barium (Ba)-Total	MS-B	L2287159-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2287159-4
Matrix Spike	Calcium (Ca)-Total	MS-B	L2287159-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2287159-4
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2287159-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2287159-4
Matrix Spike	Sodium (Na)-Total	MS-B	L2287159-4
Matrix Spike	Total Nitrogen	MS-B	L2287159-1, -2, -3, -4
Matrix Spike	Phosphorus (P)-Total	MS-B	L2287159-1, -2, -3, -4

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
DTMF	Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310B
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)

Reference Information

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method.			
Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.			
CR-CR6-ED	Water	Chromium, Hexavalent (Cr +6)	APHA 3500-Cr C (Ion Chromatography)
This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.			
Results are based on an un-filtered, field-preserved sample.			
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
F-IC-N-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)
Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
N-T-COL-VA	Water	Total Nitrogen in water by Colour	APHA4500-P(J)/NEMI9171/USGS03-4174
This analysis is carried out using procedures adapted from APHA Method 4500-P (J) "Persulphate Method for Simultaneous Determination of Total Nitrogen and Total Phosphorus" and National Environmental Methods Index - Nemi method 5735.			
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Weston et al.			
NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-PRES-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are			

Reference Information

available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

P-TD-COL-VA Water Total Dissolved P in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

PAH-ME-MS-VA Water PAHs in Water EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

SO4-IC-N-VA Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-830130

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

[illegible]

Appendix 6-K *Groundwater Quality Residential Well Results,
2018 to 2019 Baseline Data*

Appendix 6-K. Groundwater Quality Residential Well Results, 2018 to 2019 Baseline Data

						Client Sample ID	KERR				BEUKEMA	SCHMIKE	RAGULA	SHEARER
						Date Sampled	26-Jun-2018	19-Sep-2018	23-Jan-2019	8-Apr-2019	24-Jan-2019	23-Jan-2019	14-Mar-2019	8-Apr-2019
						ALS Sample ID	L2120097-1	L2168100-1	L2225129-1	L2255482-1	L2225129-3	L2225129-2	L2245111-2	L2255482-2
			BCWQG FAL		BC Approved WQG - Drinking Water Sources - Maximum Acceptable Concentration	Guidelines for Canadian Drinking Water - Maximum Acceptable Concentration								
			Approved Guidelines	Working Guidelines										
Units			Detection Limit ¹											
Physical Tests (Water)														
Color, True	CU	5.0	n.g.	n.g.	15 ^{AO}	≤15 ^{AO}	7.8	8.4	6.9	38	<5.0	<5.0	<5.0	6.8
Conductivity (lab)	µS/cm	2.0	n.g.	n.g.	n.g.	n.g.	292	190	386	335	500	193	425	407
Conductivity (field)	µS/cm	2.0	n.g.	n.g.	n.g.	n.g.	312	201	444	397	553	205	486	440
Hardness (as CaCO ₃)	mg/L	0.50	n.g.	n.g.	n.g.	n.g.	134	96.9	201	168	275	96.2	202	192
pH (lab)	pH	0.10	6.5-9	n.g.	n.g.	n.g.	7.59	7.99	7.75	7.67	7.95	7.54	8.12	7.81
pH (field)	pH	0.10	6.5-9	n.g.	n.g.	n.g.	6.94	8.1	7.66	7.7	7.88	7.41	8.27	7.64
Total Suspended Solids	mg/L	3.0	n.g.	n.g.	n.g.	n.g.	19.1	<3.0	18	17.5	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	20	n.g.	n.g.	n.g.	n.g.	186	124	240	188	312	116	244	235
Turbidity	NTU	0.10	50	n.g.	compare to background	n.g.	26.6	3.13	28.6	51.7	0.16	0.23	9.38	1.16
Oxidation-reduction potential (field)	mV	-1000.00	n.g.	n.g.	n.g.	n.g.	-72.0	2	-174	-176	57.0	21	-73.0	+24
Anions and Nutrients (Water)														
Acidity (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	n.g.	n.g.	9.8	2.6	9.3	6.5	6.0	5	2.3	7.6
Alkalinity, Bicarbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	n.g.	n.g.	154	109	227	183	227	66	206	151
Alkalinity, Carbonate (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	n.g.	n.g.	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO ₃)	mg/L	1.0	n.g.	n.g.	n.g.	n.g.	154	109	227	183	227	66	206	151
Ammonia, Total (as N)	mg/L	0.0050	0.681-28.7 ^(pH, T)	n.g.	n.g.	n.g.	0.221	0.0972	0.201	0.308	<0.0050	<0.0050	0.0238	<0.0050
Bromide (Br)	mg/L	0.050	n.g.	n.g.	n.g.	n.g.	<0.050	<0.050	<0.050	<0.050	0.151	<0.050	<0.050	0.102
Chloride (Cl)	mg/L	0.50	600	n.g.	250 ^{AO}	≤ 250 ^{AO}	0.60	<0.50	0.65	<0.50	26.7	<0.50	1.79	12.8
Fluoride (F)	mg/L	0.020	0.4-2.0 ^(H)	n.g.	1.5	1.5	0.068	0.072	0.070	0.078	0.06	0.05	0.078	0.067
Nitrate (as N)	mg/L	0.0050	32.8	n.g.	10	10	<0.0050	0.0207	<0.0050	<0.0050	0.962	0.0525	<0.0050	5.46
Nitrite (as N)	mg/L	0.0010	0.06 ^(cl)	n.g.	1	1	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Nitrogen	mg/L	0.030	n.g.	n.g.	n.g.	n.g.	0.467	0.285	0.352	0.436	0.941	0.08	0.051	5.36
Orthophosphate-Dissolved (as P)	mg/L	0.0010	n.g.	n.g.	n.g.	n.g.	0.0021	n.a.	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	0.0020	n.g.	n.g.	0.01 ^{AO}	n.g.	0.214	0.0156	0.0604	0.0573	<0.0020	<0.0020	<0.0020	0.0030
Phosphorus (P)-Total Dissolved	mg/L	0.0020	n.g.	n.g.	n.g.	n.g.	0.197	0.0027	0.0545	0.0536	<0.0020	<0.0020	-	<0.0020
Sulfate (SO ₄)	mg/L	0.30	128 - 429 ^(H)	n.g.	500 ^{AO}	≤500 ^{AO}	<0.30	1.16	<0.30	<0.30	4.81	32.8	32.1	13.6
Organic / Inorganic Carbon (Water)														
Dissolved Organic Carbon	mg/L	0.50	n.g.	n.g.	n.g.	n.g.	4.43	2.94	5.12	3.55	1.38	1.94	0.89	5.36
Total Organic Carbon	mg/L	0.50	n.g.	n.g.	4	n.g	4.65	2.69	5.08	3.76	1.13	1.66	0.77	5.28
Total Metals (Water)														
Aluminum (Al)-Total	mg/L	0.0050	n.g.	n.g.	9.5	n.g.	0.0109	<0.0050	0.0084	0.0066	<0.0050	<0.0050	<0.0050	0.0160
Antimony (Sb)-Total	mg/L	0.00050	n.g.	n.g.	n.g.	0.006	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic (As)-Total	mg/L	0.00050	0.005	n.g.	0.01	0.01	0.0199	0.00157	0.0115	0.00871	<0.00050	<0.00050	0.00059	<0.00050
Barium (Ba)-Total	mg/L	0.020	n.g.	5	n.g.	1	0.245	0.155	0.282	0.307	0.345	0.057	0.094	0.253
Beryllium (Be)-Total	mg/L	0.00010	n.g.	0.0053	n.g.	n.g.	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Total	mg/L	0.10	1.2	n.g.	5	5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium (Cd)-Total	mg/L	0.0000050	n.g.	n.g.	0.005	0.005	0.0000178	0.0000124	0.0000251	0.000018	<0.0000050	<0.0000050	0.0000052	0.0000129
Calcium (Ca)-Total	mg/L	0.10	n.g.	n.g.	n.g.	n.g.	39.0	26.9	51.4	48.4	78.1	24.2	54.6	55.9
Chromium (Cr)-Total	mg/L	0.0010	n.g.	0.001 or 0.0089 ³	n.g.	0.05	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	0.00030	0.11	n.g.	n.g.	n.g.	0.00233	0.00055	0.00265	0.00293	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)-Total	mg/L	0.0010	0.002 - 0.026 ^(H)	n.g.	1 ^{AO}	≤1 ^{AO}	<0.0010	<0.0010	<0.0010	<0.0010	0.0033	0.027	0.0046	0.0648
Iron (Fe)-Total	mg/L	0.030	1	n.g.	0.3 ^{AO}	≤0.3 ^{AO}	9.73	0.834	7.28	8.28	0.045	0.034	0.819	0.159
Lead (Pb)-Total	mg/L	0.00050	0.003 - 0.33 ^(H)	n.g.	0.01	0.01	<0.00050	<0.00050	<0.00050	<0.00050	0.00071	<0.00050	0.00104	<0.00050
Lithium (Li)-Total	mg/L	0.0010	n.g.	0.87	n.g.	n.g.	<0.0010	<0.0010	<0.0010	<0.0020	0.0015	<0.0010	0.0035	<0.0010
Magnesium (Mg)-Total	mg/L	0.10	n.g.	n.g.	n.g.	n.g.	8.60	6.48	12.0	10.8	10.3	5.95	15.9	12.2
Manganese (Mn)-Total	mg/L	0.00030	0.80-3.80 ^(H)	n.g.	0.05 ^{AO}	≤0.05 ^{AO}	4.45	1.03	6.91	7.02	0.00039	0.0102	0.20900	0.00562
Mercury (Hg)-Total	mg/L	0.0000050	n.g.	n.g.	0.001	0.001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.0010	2	n.g.	0.25	n.g.	0.0010	<0.0010	0.0023	0.0016	<0.0010	<0.0010	0.0019	<0.0010
Nickel (Ni)-Total	mg/L	0.0010	n.g.	0.025 - 0.180 ^(H)	n.g.	n.g.	0.0016	<0.0010	0.0015	0.0015	<0.0010	<0.0010	<0.0010	<0.0010
Potassium (K)-Total	mg/L	2.0	n.g.	373-432	n.g.	n.g.	2.5	<2.0	2.4	2.1	<2.0	<2.0	<2.0	2.2

Appendix 6-K. Groundwater Quality Residential Well Results, 2018 to 2019 Baseline Data

						Client Sample ID	KERR				BEUKEMA	SCHMIKE	RAGULA	SHEARER
						Date Sampled	26-Jun-2018	19-Sep-2018	23-Jan-2019	8-Apr-2019	24-Jan-2019	23-Jan-2019	14-Mar-2019	8-Apr-2019
						ALS Sample ID	L2120097-1	L2168100-1	L2225129-1	L2255482-1	L2225129-3	L2225129-2	L2245111-2	L2255482-2
	Units	Detection Limit ¹	BCWQG FAL		BC Approved WQG - Drinking Water Sources - Maximum Acceptable Concentration	Guidelines for Canadian Drinking Water - Maximum Acceptable Concentration								
			Approved Guidelines	<i>Working Guidelines</i>										
Selenium (Se)-Total	mg/L	0.000050	0.002	n.g.	0.01	0.05	<0.000050	<0.000050	0.000053	<0.00010	0.000075	0.000073	<0.000050	0.000091
Silver (Ag)-Total	mg/L	0.000020	0.0001-0.003 ^(H)	n.g.	n.g.	n.g.	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	2.0	n.g.	n.g.	n.g.	n.g.	4.3	3.7	4.8	4.6	6.1	3.5	14.0	13.7
Thallium (Tl)-Total	mg/L	0.000010	n.g.	0.0017 - 0.0063 ⁴	n.g.	n.g.	<0.000010	<0.000010	<0.000010	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	0.00050	n.g.	n.g.	n.g.	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium (Ti)-Total	mg/L	0.010	n.g.	2	n.g.	n.g.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)-Total	mg/L	0.00020	n.g.	0.3	n.g.	0.02	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020
Vanadium (V)-Total	mg/L	0.00050	n.g.	0.020 ⁵	n.g.	n.g.	0.00173	0.00118	0.00201	0.0012	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	0.0050	0.033-0.265 ^(H)	n.g.	5.0 ^{AO}	≤5.0 ^{AO}	0.0778	0.0257	0.0989	0.110	<0.0050	<0.0050	0.0642	0.0214
Dissolved Metals (Water)														
Aluminum (Al)-Dissolved	mg/L	0.0050	0.10 ^{(pH)(2)}	n.g.	n.g.	n.g.	0.0072	<0.0050	0.0062	0.0056	<0.0050	<0.0050	<0.0050	<0.0050
Antimony (Sb)-Dissolved	mg/L	0.00050	n.g.	n.g.	n.g.	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic (As)-Dissolved	mg/L	0.00050	n.g.	n.g.	n.g.	n.g.	0.0180	0.00105	0.0116	0.00928	<0.00050	<0.00050	<0.00050	<0.00050
Barium (Ba)-Dissolved	mg/L	0.020	n.g.	n.g.	n.g.	n.g.	0.245	0.167	0.318	0.321	0.376	0.065	0.095	0.258
Beryllium (Be)-Dissolved	mg/L	0.00010	n.g.	n.g.	n.g.	n.g.	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Dissolved	mg/L	0.10	n.g.	n.g.	n.g.	n.g.	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium (Cd)-Dissolved	mg/L	0.0000050	0.0000176-0.000457 ^{(H)(6)}	n.g.	n.g.	n.g.	<0.0000050	0.0000078	0.0000149	0.0000113	<0.0000050	<0.0000050	<0.0000050	0.0000077
Calcium (Ca)-Dissolved	mg/L	0.10	n.g.	n.g.	n.g.	n.g.	39.5	27.7	58.6	47.9	90.3	27.1	55.6	55.8
Chromium (Cr)-Dissolved	mg/L	0.0010	n.g.	n.g.	n.g.	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Dissolved	mg/L	0.00030	n.g.	n.g.	n.g.	n.g.	0.00223	0.00062	0.00284	0.00299	<0.00030	<0.00030	<0.00030	<0.00030
Copper (Cu)-Dissolved	mg/L	0.0010	n.g.	n.g.	n.g.	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	0.0033	0.0306	<0.0010	0.0504
Iron (Fe)-Dissolved	mg/L	0.030	0.35	n.g.	n.g.	n.g.	9.10	0.106	7.44	8.32	<0.030	<0.030	0.336	0.074
Lead (Pb)-Dissolved	mg/L	0.00050	n.g.	n.g.	n.g.	n.g.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Lithium (Li)-Dissolved	mg/L	0.0010	n.g.	n.g.	n.g.	n.g.	<0.0010	<0.0010	<0.0010	<0.0010	0.0015	<0.0010	0.0036	<0.0010
Magnesium (Mg)-Dissolved	mg/L	0.10	n.g.	n.g.	n.g.	n.g.	8.66	6.71	13.3	11.7	12	6.96	15.4	12.9
Manganese (Mn)-Dissolved	mg/L	0.00010	n.g.	n.g.	n.g.	n.g.	4.34	1.24	7.46	7.55	0.00017	0.0088	0.21200	0.00580
Mercury (Hg)-Dissolved	mg/L	0.0000050	n.g.	n.g.	n.g.	n.g.	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.0010	n.g.	n.g.	n.g.	n.g.	0.0011	<0.0010	0.0024	0.0016	<0.0010	<0.0010	0.0019	<0.0010
Nickel (Ni)-Dissolved	mg/L	0.0010	n.g.	n.g.	n.g.	n.g.	0.0026	<0.0010	0.0012	0.0014	<0.0010	<0.0010	<0.0010	0.0011
Potassium (K)-Dissolved	mg/L	2.0	n.g.	n.g.	n.g.	n.g.	2.4	<2.0	2.5	2.4	<2.0	<2.0	<2.0	2.3
Selenium (Se)-Dissolved	mg/L	0.000050	n.g.	n.g.	n.g.	n.g.	<0.000050	0.00014	<0.000050	0.000095	<0.000050	0.000058	0.000055	0.000114
Silver (Ag)-Dissolved	mg/L	0.000020	n.g.	n.g.	n.g.	n.g.	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium (Na)-Dissolved	mg/L	2.0	n.g.	n.g.	n.g.	n.g.	4.3	3.9	5.2	4.8	6.9	3.9	15.2	13.7
Thallium (Tl)-Dissolved	mg/L	0.00020	n.g.	n.g.	n.g.	n.g.	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin (Sn)-Dissolved	mg/L	0.00050	n.g.	n.g.	n.g.	n.g.	<0.00050	<0.00050	0.00212	<0.00050	0.00099	0.00281	<0.00050	<0.00050
Titanium (Ti)-Dissolved	mg/L	0.010	n.g.	n.g.	n.g.	n.g.	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)-Dissolved	mg/L	0.00020	n.g.	n.g.	n.g.	n.g.	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020
Vanadium (V)-Dissolved	mg/L	0.00050	n.g.	n.g.	n.g.	n.g.	0.00130	0.00072	0.00151	0.00118	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	0.0050	n.g.	n.g.	n.g.	n.g.	0.0558	0.0222	0.0881	0.082	<0.0050	<0.0050	0.0298	0.0170

Notes:

Bolded: Concentration exceeds BCWQG FAL

Shaded green: Concentration exceeds BC Approved WQG - Drinking Water Sources

Shaded orange: Concentration exceeds Guidelines for Canadian Drinking Water - Maximum Acceptable Concentration

BCWQG FAL = BC Water Quality Guidelines, Maximum concentrations for Freshwater Aquatic Life

¹ Lowest reported detection limit listed

² Dissolved Aluminum is pH dependent. Maximum concentration is 0.10 mg/L when the pH is greater than or equal to 6.5.

³ Chromium (VI) maximum is 1.0 µg/l and Chromium (III) maximum is 8.9 µg/L.

⁴ Thallium - 1.7 µg/L human health, consumption of water + organism and 6.3 µg/L human health, consumption of organism only.

⁵ Vanadium - 20 µg/L for secondary chronic value

⁶ Dissolved Cadmium is hardness dependent. Lower bound for long term average guideline exposure is 0.0000176 mg/L and the upper bound is 0.000457 mg/L.

AO = Aesthetic Objective established for parameters that may impair the taste, smell, or color of water; or which may interfere with the supply of good quality water. They do not cause adverse health effects.

n.g. = no guideline

n.a. = not analyzed

(pH) pH dependent guideline

(T) Temperature dependent guideline

(Cl) Chloride dependent guideline

(H) Hardness dependent guideline

Sources:

Water Protection & Sustainability Branch, Ministry of Environment & Climate Change Strategy, 2018. British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture

Water Protection & Sustainability Branch, Ministry of Environment & Climate Change Strategy, 2017. British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture

British Columbia Ministry of Environment, 2017. B.C. Source Drinking Water Quality Guidelines: Guideline Summary.

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Health Canada, 2017. Guidelines for Canadian Drinking Water Quality – Summary Table. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

Appendix 7-A Mean Daily Discharge Tables

Appendix 7-A1. Summary of Daily Discharge [Q, m³/s] at Hydrometric Station Tenas-Hydro, 2017

Drainage Area = 47.4 km²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.121	0.118	0.108	0.110	0.232	4.473	0.882	0.272	0.280	0.389	1.672	0.165
2	0.121	0.110	0.110	0.112	0.243	4.027	0.951	0.275	0.255	0.326	1.391	0.164
3	0.119	0.118	0.109	0.113	0.238	3.333	0.829	0.282	0.261	0.278	0.580	0.150
4	0.120	0.119	0.109	0.111	0.269	2.623	0.663	0.278	0.275	0.255	0.467	0.147
5	0.121	0.119	0.107	0.111	0.310	2.285	0.611	0.275	0.254	0.252	0.446	0.164
6	0.121	0.117	0.107	0.116	0.398	2.242	0.629	0.261	0.450	0.228	0.381	0.155
7	0.121	0.114	0.106	0.118	0.465	2.666	0.699	0.255	0.254	0.248	0.320	0.151
8	0.120	0.114	0.105	0.119	0.393	4.344	0.699	0.249	0.259	0.246	0.336	0.146
9	0.120	0.112	0.106	0.125	0.366	5.085	0.672	0.256	0.267	0.222	0.313	0.132
10	0.118	0.113	0.105	0.131	0.376	3.681	0.578	0.246	0.339	0.231	0.293	0.136
11	0.113	0.114	0.105	0.130	0.366	3.287	0.502	0.236	0.299	0.222	0.273	0.152
12	0.116	0.113	0.104	0.134	0.471	2.853	0.513	0.222	4.672	0.205	0.262	0.146
13	0.119	0.113	0.105	0.149	0.811	2.292	0.542	0.221	2.440	0.197	0.255	0.143
14	0.119	0.112	0.107	0.155	0.728	1.977	0.502	0.196	1.140	0.187	0.242	0.140
15	0.118	0.111	0.107	0.148	0.587	1.825	0.490	0.174	0.529	0.190	0.232	0.140
16	0.118	0.114	0.107	0.149	0.528	1.802	0.458	0.175	0.428	0.329	0.223	0.142
17	0.117	0.118	0.105	0.155	0.499	1.586	0.420	0.175	0.367	0.253	0.210	0.140
18	0.118	0.117	0.105	0.155	2.554	1.421	0.410	0.257	0.352	0.253	0.195	0.142
19	0.117	0.115	0.105	0.155	2.556	1.756	0.399	0.268	0.348	0.252	0.193	0.139
20	0.119	0.113	0.104	0.152	2.649	1.893	0.401	0.267	0.323	0.295	0.201	0.132
21	0.117	0.112	0.102	0.162	3.360	1.343	0.390	0.254	0.308	0.287	0.193	0.116
22	0.115	0.111	0.104	0.180	4.691	1.167	0.446	0.255	0.287	0.265	0.195	0.131
23	0.114	0.111	0.104	0.194	4.874	1.080	0.423	0.304	0.269	0.254	0.192	0.126
24	0.111	0.107	0.104	0.205	4.021	1.098	0.343	0.284	0.262	0.290	0.198	0.115
25	0.112	0.112	0.105	0.208	3.772	1.528	0.342	0.261	0.263	4.886	0.193	0.127
26	0.111	0.108	0.105	0.213	3.989	1.305	0.440	0.376	0.284	24.376	0.185	0.129
27	0.111	0.110	0.104	0.229	4.075	0.965	0.407	0.498	0.295	3.611	0.183	0.131
28	0.112	0.109	0.104	0.258	4.307	0.908	0.344	0.270	0.290	2.043	0.176	0.133
29	0.118		0.106	0.247	5.540	0.930	0.356	0.307	0.275	2.509	0.174	0.128
30	0.126		0.109	0.232	5.502	0.938	0.349	0.279	0.323	1.841	0.170	0.129
31	0.126		0.108		4.849		0.288	0.277		1.210		0.127
Mean	0.118	0.113	0.106	0.159	2.065	2.224	0.515	0.265	0.555	1.504	0.345	0.139
Max	0.126	0.119	0.110	0.258	5.540	5.085	0.951	0.498	4.672	24.376	1.672	0.165
Min	0.111	0.107	0.102	0.110	0.232	0.908	0.288	0.174	0.254	0.187	0.170	0.115
Total	3.650	3.176	3.279	4.774	64.017	66.714	15.980	8.208	16.644	46.630	10.343	4.317

Notes:

Estimated and modelled values are italicized.

Values in red denote high uncertainty based on extrapolation of the rating curve beyond 2 times the greatest measured discharge.

Appendix 7-A2. Summary of Daily Discharge [Q, m³/s] at Hydrometric Station Goathorn-Hydro, 2017

Drainage Area = 121.6 km²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.243	0.227	0.181	0.190	0.752	7.485	3.426	1.186	0.855	1.179	3.894	0.444
2	0.243	0.191	0.191	0.200	0.801	6.544	3.445	1.147	0.881	0.962	3.411	0.438
3	0.234	0.230	0.189	0.204	0.777	5.668	3.311	1.295	0.945	0.855	2.341	0.373
4	0.239	0.234	0.186	0.197	0.918	4.695	2.384	1.400	0.853	0.841	1.827	0.362
5	0.244	0.233	0.178	0.196	1.108	4.024	1.891	1.408	0.853	0.841	1.728	0.439
6	0.244	0.224	0.178	0.219	1.507	3.762	1.934	1.407	0.849	0.732	1.430	0.397
7	0.243	0.213	0.174	0.229	1.814	4.474	2.623	1.387	0.875	0.825	1.151	0.378
8	0.236	0.212	0.169	0.232	1.486	7.778	3.277	1.400	0.908	0.815	1.226	0.358
9	0.237	0.203	0.172	0.261	1.365	12.928	2.953	1.400	0.908	0.705	1.120	0.291
10	0.230	0.207	0.168	0.289	1.410	7.572	2.604	1.452	1.059	0.746	1.030	0.313
11	0.207	0.211	0.169	0.285	1.364	7.332	1.877	1.495	9.054	0.706	0.939	0.382
12	0.222	0.207	0.166	0.302	1.844	6.761	1.641	1.326	5.215	0.629	0.886	0.357
13	0.232	0.206	0.171	0.370	3.401	5.363	1.935	1.215	2.980	0.589	0.856	0.343
14	0.232	0.199	0.176	0.399	3.017	4.421	1.910	1.099	2.107	0.543	0.798	0.328
15	0.228	0.199	0.178	0.366	2.373	4.276	1.792	0.910	1.647	0.559	0.749	0.328
16	0.227	0.213	0.177	0.369	2.102	5.043	1.689	0.846	1.367	0.846	0.710	0.337
17	0.225	0.228	0.171	0.398	5.714	4.369	1.535	0.865	1.297	0.844	0.649	0.332
18	0.228	0.226	0.171	0.397	5.566	3.655	1.434	0.915	1.280	0.843	0.583	0.339
19	0.225	0.215	0.168	0.399	5.519	4.166	1.432	0.909	1.166	0.843	0.571	0.323
20	0.233	0.206	0.164	0.384	5.500	5.852	1.494	0.851	1.096	1.039	0.607	0.294
21	0.224	0.200	0.157	0.429	6.230	4.227	1.510	0.857	1.004	1.004	0.570	0.218
22	0.215	0.194	0.164	0.510	7.986	3.215	1.555	1.082	0.917	0.902	0.582	0.289
23	0.211	0.196	0.164	0.574	9.100	2.929	1.894	0.988	0.890	1.016	0.567	0.264
24	0.196	0.181	0.164	0.627	7.841	2.999	1.502	0.884	0.890	9.422	0.596	0.217
25	0.200	0.199	0.168	0.639	7.219	4.425	1.334	0.884	0.986	42.937	0.572	0.270
26	0.198	0.183	0.169	0.665	7.211	5.133	1.730	1.409	1.036	42.937	0.536	0.279
27	0.199	0.194	0.165	0.738	7.424	3.518	2.135	0.925	1.015	7.229	0.527	0.289
28	0.201	0.189	0.167	0.870	7.529	3.200	1.685	1.096	0.945	4.532	0.495	0.295
29	0.228		0.172	0.817	8.603	3.396	1.475	0.965	1.168	5.334	0.486	0.274
30	0.265		0.186	0.750	9.437	3.720	1.549	0.957	1.467	4.185	0.464	0.281
31	0.265		0.182		8.388		1.354	0.971		3.099		0.270
Mean	0.228	0.208	0.173	0.417	4.365	5.098	2.010	1.127	1.550	4.469	1.063	0.326
Max	0.265	0.234	0.191	0.870	9.437	12.928	3.445	1.495	9.054	42.937	3.894	0.444
Min	0.196	0.181	0.157	0.190	0.752	2.929	1.334	0.846	0.849	0.543	0.464	0.217
Total	7.056	5.821	5.355	12.505	135.308	152.929	62.310	34.932	46.512	138.539	31.900	10.104

Notes:

Estimated and modelled values are italicized.

Values in red denote high uncertainty based on extrapolation of the rating curve beyond 2 times the greatest measured discharge.

Appendix 7-A3. Summary of Daily Discharge [Q, m³/s] at Hydrometric Station Telkwa-Hydro, 2017

Drainage Area = 966.9 km²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	5.311	5.125	4.575	4.685	11.359	150.366	59.561	22.940	21.975	21.521	68.220	7.701
2	5.311	4.696	4.691	4.805	11.936	129.282	57.862	23.923	23.869	17.345	48.387	7.626
3	5.207	5.154	4.674	4.854	11.648	113.928	60.703	27.759	22.223	15.457	35.897	6.861
4	5.268	5.210	4.631	4.763	13.334	87.969	49.118	29.790	19.199	15.457	34.579	6.729
5	5.328	5.193	4.538	4.756	15.586	72.897	41.402	29.863	20.428	11.804	28.064	7.645
6	5.320	5.086	4.539	5.026	20.329	70.078	40.289	30.721	22.074	11.114	21.787	7.135
7	5.316	4.951	4.497	5.143	23.969	91.030	49.220	32.341	22.919	12.222	24.168	6.916
8	5.227	4.943	4.430	5.180	20.076	147.186	54.687	32.610	20.323	12.109	22.246	6.677
9	5.237	4.833	4.468	5.524	18.638	221.949	48.862	33.921	16.205	10.796	19.769	5.880
10	5.152	4.881	4.420	5.860	19.175	146.541	45.959	35.171	16.680	11.289	17.621	6.144
11	4.884	4.937	4.432	5.815	18.626	127.832	35.861	34.474	141.931	16.524	16.470	6.966
12	5.059	4.888	4.397	6.016	24.321	123.295	31.356	30.087	126.845	16.524	15.932	6.667
13	5.186	4.878	4.455	6.820	42.815	95.392	34.332	25.743	51.880	16.458	15.245	6.502
14	5.182	4.790	4.519	7.163	38.258	79.242	33.627	23.751	34.891	16.458	15.245	6.320
15	5.138	4.788	4.537	6.771	30.606	73.683	31.980	19.069	26.957	21.318	15.558	6.325
16	5.125	4.952	4.533	6.805	63.491	90.136	32.249	20.044	22.407	25.815	15.391	6.431
17	5.097	5.135	4.458	7.152	65.105	77.972	33.493	21.619	20.447	22.591	15.151	6.363
18	5.130	5.104	4.459	7.142	70.099	67.115	29.652	32.495	21.069	19.815	15.151	6.458
19	5.099	4.980	4.418	7.162	73.072	74.004	28.649	28.237	17.405	18.294	9.205	6.260
20	5.195	4.876	4.378	6.981	78.038	97.154	30.006	20.197	16.015	17.927	9.629	5.914
21	5.090	4.803	4.292	7.522	91.539	75.705	30.367	31.365	15.085	16.396	9.195	5.021
22	4.985	4.736	4.371	8.484	121.830	63.852	28.819	36.191	15.085	15.575	9.337	5.863
23	4.931	4.755	4.377	9.247	149.197	60.612	36.067	30.098	15.200	16.062	9.160	5.559
24	4.760	4.570	4.373	9.874	135.760	59.501	28.899	22.387	24.980	142.707	9.505	4.998
25	4.801	4.792	4.417	10.016	125.284	71.574	28.294	17.938	33.580	385.512	9.223	5.631
26	4.778	4.595	4.431	10.318	131.186	84.339	33.740	20.893	34.964	178.073	8.791	5.741
27	4.787	4.730	4.386	11.190	146.571	66.979	38.797	32.620	33.845	94.937	8.690	5.858
28	4.818	4.675	4.404	12.761	153.798	63.951	31.935	44.237	27.624	101.478	8.310	5.931
29	5.130		4.473	12.125	171.041	65.351	28.428	29.959	32.102	87.637	8.203	5.685
30	5.577		4.639	11.330	180.867	67.466	28.511	28.593	32.079	65.012	7.940	5.762
31	5.497		4.590		180.221		24.303	28.051		68.302		5.633
Mean	5.127	4.895	4.478	7.376	72.831	93.879	37.646	28.293	31.676	48.469	18.402	6.297
Max	5.577	5.210	4.691	12.761	180.867	221.949	60.703	44.237	141.931	385.512	68.220	7.701
Min	4.760	4.570	4.292	4.685	11.359	59.501	24.303	17.938	15.085	10.796	7.940	4.998
Total	158.924	137.055	138.805	221.290	2257.776	2816.378	1167.026	877.084	950.286	1502.530	552.067	195.205

Notes:

Estimated and modelled values are italicized.

Values in red denote high uncertainty based on extrapolation of the rating curve beyond 2 times the greatest measured discharge.

Appendix 7-A4. Summary of Daily Discharge [Q, m³/s] at Hydrometric Station Tenas-Hydro B, 2018

Drainage Area = 47 km²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.127	0.069	0.054	0.145	1.982	1.433	0.652	0.245	0.069	0.085	0.130	0.090
2	0.124	0.068	0.054	0.158	2.163	1.347	0.596	0.223	0.069	0.083	0.129	0.087
3	0.121	0.067	0.054	0.173	2.575	1.406	0.622	0.211	0.068	0.076	0.129	0.084
4	0.118	0.066	0.054	0.188	2.690	1.374	0.686	0.213	0.063	0.081	0.129	0.082
5	0.115	0.066	0.054	0.206	3.034	1.232	0.788	0.195	0.059	0.080	0.128	0.079
6	0.112	0.065	0.053	0.224	3.464	1.213	0.761	0.180	0.060	0.081	0.128	0.076
7	0.109	0.064	0.053	0.245	3.989	1.268	0.633	0.174	0.081	0.098	0.127	0.073
8	0.106	0.064	0.053	0.267	4.740	1.320	0.565	0.171	0.123	0.182	0.127	0.071
9	0.103	0.063	0.053	0.291	6.190	1.316	0.493	0.182	0.098	0.204	0.127	0.068
10	0.100	0.062	0.053	0.318	5.658	1.193	0.467	0.175	0.117	0.165	0.126	0.065
11	0.097	0.062	0.053	0.347	4.784	1.098	0.456	0.146	0.095	0.147	0.126	0.065
12	0.094	0.061	0.052	0.379	4.847	1.020	0.441	0.129	0.100	0.197	0.125	0.065
13	0.091	0.060	0.052	0.413	5.345	1.028	0.390	0.127	0.089	0.148	0.125	0.065
14	0.088	0.059	0.052	0.451	5.920	1.074	0.351	0.129	0.078	0.136	0.125	0.065
15	0.085	0.059	0.052	0.492	5.616	1.097	0.348	0.123	0.084	0.136	0.124	0.065
16	0.082	0.058	0.052	0.536	4.926	1.103	0.379	0.108	0.085	0.136	0.124	0.065
17	0.079	0.057	0.052	0.585	4.773	1.311	0.437	0.100	0.093	0.136	0.123	0.065
18	0.078	0.057	0.051	0.638	5.023	1.564	0.407	0.099	0.097	0.135	0.123	0.065
19	0.078	0.056	0.051	0.697	5.152	1.556	0.363	0.094	0.096	0.135	0.123	0.065
20	0.077	0.056	0.051	0.760	6.218	1.679	0.477	0.091	0.110	0.135	0.120	0.065
21	0.076	0.056	0.056	0.829	5.117	1.638	0.571	0.089	0.123	0.134	0.118	0.065
22	0.076	0.055	0.061	0.905	4.527	1.370	0.435	0.093	0.090	0.134	0.115	0.065
23	0.075	0.055	0.066	0.987	4.710	1.117	0.387	0.092	0.078	0.133	0.112	0.065
24	0.074	0.055	0.072	1.077	4.714	1.044	0.333	0.083	0.086	0.133	0.109	0.065
25	0.073	0.055	0.079	1.175	3.593	0.974	0.305	0.084	0.094	0.133	0.106	0.065
26	0.073	0.055	0.086	1.282	2.735	0.801	0.294	0.083	0.090	0.132	0.104	0.065
27	0.072	0.055	0.094	1.399	2.396	0.705	0.286	0.078	0.124	0.132	0.101	0.065
28	0.071	0.054	0.102	1.526	2.297	0.639	0.283	0.085	0.133	0.131	0.098	0.065
29	0.071		0.112	1.665	1.894	0.681	0.279	0.081	0.113	0.131	0.095	0.065
30	0.070		0.122	1.817	1.633	0.800	0.269	0.073	0.092	0.131	0.093	0.065
31	0.069		0.133		1.494		0.263	0.072		0.130		0.065
Mean	0.090	0.060	0.066	0.673	4.006	1.180	0.452	0.130	0.092	0.130	0.119	0.069
Max	0.127	0.069	0.133	1.817	6.218	1.679	0.788	0.245	0.133	0.204	0.130	0.090
Min	0.069	0.054	0.051	0.145	1.494	0.639	0.263	0.072	0.059	0.076	0.093	0.065
Total	2.784	1.679	2.036	20.176	124.199	35.405	14.016	4.029	2.756	4.031	3.571	2.137

Notes:

Estimated and modelled values are italicized.

Values in red denote high uncertainty based on extrapolation of the rating curve beyond 2 times the greatest measured discharge.

Appendix 7-A5. Summary of Daily Discharge [Q, m³/s] at Hydrometric Station Goathorn-Hydro, 2018

Drainage Area = 121.6 km²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.270	0.266	0.203	0.455	5.606	2.929	2.975	1.464	0.649	0.727	0.610	0.261
2	0.271	0.264	0.200	0.495	6.627	2.788	2.520	1.315	0.636	0.698	0.593	0.258
3	0.273	0.263	0.197	0.538	7.280	2.920	2.451	1.178	0.639	0.692	0.576	0.254
4	0.274	0.261	0.195	0.585	7.086	3.003	2.724	1.155	0.634	0.665	0.559	0.251
5	0.276	0.260	0.192	0.636	7.402	2.662	3.423	1.037	0.613	0.683	0.542	0.247
6	0.277	0.258	0.189	0.691	7.939	2.552	3.533	0.963	0.598	0.680	0.525	0.244
7	0.278	0.256	0.186	0.752	9.011	2.495	3.007	0.974	0.600	0.683	0.507	0.240
8	0.280	0.255	0.184	0.817	10.588	2.690	2.763	0.978	0.686	0.752	0.490	0.237
9	0.281	0.253	0.181	0.889	15.654	2.981	2.302	0.972	0.847	1.080	0.473	0.233
10	0.283	0.252	0.178	0.966	14.907	2.866	2.121	1.024	0.751	1.166	0.456	0.230
11	0.284	0.250	0.175	1.051	10.893	2.584	2.045	0.939	0.825	1.010	0.439	0.230
12	0.285	0.249	0.173	1.142	11.274	2.303	2.001	0.939	0.738	0.943	0.422	0.230
13	0.287	0.247	0.170	1.242	12.325	2.381	1.856	0.872	0.756	1.139	0.405	0.230
14	0.288	0.244	0.167	1.351	13.052	2.776	1.641	0.864	0.714	0.944	0.388	0.230
15	0.290	0.241	0.164	1.469	12.995	3.095	1.536	0.873	0.673	0.901	0.371	0.230
16	0.291	0.239	0.161	1.597	10.012	3.077	1.609	0.846	0.696	0.884	0.354	0.230
17	0.289	0.236	0.159	1.736	9.380	3.892	2.069	0.790	0.699	0.867	0.336	0.230
18	0.288	0.233	0.156	1.888	10.130	5.454	2.110	0.759	0.729	0.849	0.319	0.230
19	0.286	0.230	0.153	2.053	10.044	5.894	1.840	0.755	0.748	0.832	0.302	0.230
20	0.285	0.228	0.167	2.232	12.637	7.838	2.156	0.736	0.741	0.815	0.299	0.230
21	0.283	0.225	0.181	2.427	9.499	8.371	3.295	0.725	0.797	0.798	0.296	0.230
22	0.282	0.222	0.197	2.639	7.831	6.568	2.526	0.714	0.848	0.781	0.292	0.230
23	0.280	0.219	0.214	2.869	7.934	5.221	2.166	0.730	0.718	0.764	0.289	0.230
24	0.278	0.217	0.233	3.120	8.330	4.416	1.740	0.727	0.670	0.747	0.285	0.230
25	0.277	0.214	0.253	3.392	7.076	4.288	1.510	0.690	0.702	0.730	0.282	0.229
26	0.275	0.211	0.275	3.688	5.381	3.592	1.421	0.695	0.733	0.713	0.278	0.229
27	0.274	0.208	0.299	4.010	4.411	3.033	1.411	0.691	0.718	0.696	0.275	0.229
28	0.272	0.206	0.325	4.361	4.227	2.605	1.483	0.671	1.130	0.678	0.271	0.229
29	0.271		0.354	4.741	3.613	2.559	1.553	0.700	1.028	0.661	0.268	0.229
30	0.269		0.385	5.155	3.232	3.183	1.555	0.682	1.028	0.644	0.264	0.229
31	0.267		0.418		2.943		1.473	0.653		0.627		0.229
Mean	0.279	0.240	0.216	1.966	8.688	3.701	2.155	0.875	0.745	0.802	0.392	0.235
Max	0.291	0.266	0.418	5.155	15.654	8.371	3.533	1.464	1.130	1.166	0.610	0.261
Min	0.267	0.206	0.153	0.455	2.943	2.303	1.411	0.653	0.598	0.627	0.264	0.229
Total	8.664	6.707	6.684	58.986	269.319	111.016	66.817	27.112	22.343	24.849	11.766	7.277

Notes:

Estimated and modelled values are italicized.

Values in red denote high uncertainty based on extrapolation of the rating curve beyond 2 times the greatest measured discharge.

Appendix 7-A6. Summary of Daily Discharge [Q, m³/s] at Hydrometric Station Telkwa-Hydro, 2018

Drainage Area = 966.9 km²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	5.633	4.217	2.113	4.690	52.275	57.574	41.546	29.894	16.590	7.693	6.427	5.325
2	5.689	4.076	2.087	5.083	61.390	54.344	35.577	29.710	12.751	6.704	6.277	5.111
3	5.745	3.935	2.062	5.508	74.496	55.559	35.888	29.283	12.792	6.123	6.438	4.889
4	5.801	3.794	2.036	5.969	74.167	55.158	36.160	26.950	12.641	5.765	9.766	4.602
5	5.857	3.653	2.010	6.469	83.881	48.463	41.159	22.919	9.351	5.534	14.834	3.640
6	5.913	3.512	1.984	7.010	94.839	50.281	46.959	24.587	8.418	5.477	12.484	3.743
7	5.968	3.371	1.958	7.597	116.285	54.092	45.391	28.060	8.549	5.386	10.411	4.347
8	6.024	3.230	1.933	8.233	145.165	56.927	48.704	26.410	11.294	5.324	8.562	4.290
9	6.080	3.089	1.907	8.921	184.626	56.810	42.598	27.382	10.388	6.477	7.619	4.137
10	6.136	2.949	1.881	9.668	194.352	55.553	39.613	25.619	22.283	7.497	7.487	4.047
11	6.192	2.808	1.855	10.477	151.540	51.978	37.678	21.744	22.283	6.591	7.056	4.199
12	6.248	2.667	1.829	11.354	151.662	47.651	36.496	18.156	14.875	6.359	6.557	4.293
13	6.304	2.526	1.804	12.304	176.025	48.533	33.041	20.655	12.762	12.818	6.319	4.230
14	6.360	2.500	1.778	13.334	193.935	60.656	28.286	24.483	9.770	9.107	6.117	4.212
15	6.416	2.474	1.752	14.449	205.061	69.573	27.158	21.213	8.010	7.628	6.172	4.231
16	6.471	2.449	1.726	15.659	175.645	67.565	28.284	21.213	7.406	6.975	6.953	4.136
17	6.330	2.423	1.700	16.969	172.878	84.404	35.902	16.010	6.892	6.504	6.364	4.106
18	6.189	2.397	1.675	18.389	184.241	109.880	38.953	16.302	6.360	6.596	6.000	4.078
19	6.048	2.371	1.650	19.928	195.413	118.426	35.764	16.635	6.089	6.803	5.896	4.049
20	5.907	2.345	1.788	21.596	230.116	119.822	29.688	15.330	5.981	6.324	5.555	3.963
21	5.767	2.320	1.938	23.403	195.251	116.595	37.254	15.649	6.037	7.119	5.435	3.924
22	5.626	2.294	2.100	25.361	148.089	111.350	34.095	18.625	6.173	6.176	5.362	3.580
23	5.485	2.268	2.276	27.483	149.466	90.488	31.683	18.625	5.832	5.728	5.206	3.541
24	5.344	2.242	2.466	29.783	170.412	75.191	27.235	18.129	5.600	5.447	5.148	3.741
25	5.203	2.216	2.672	32.276	145.187	61.258	24.656	13.151	7.257	5.353	5.042	3.757
26	5.062	2.191	2.896	34.977	104.412	50.894	25.005	18.542	8.286	5.451	4.990	3.554
27	4.921	2.165	3.138	37.904	86.811	42.309	25.986	18.542	9.083	5.502	5.181	3.619
28	4.780	2.139	3.401	41.076	89.034	35.876	28.260	21.793	13.195	5.405	5.547	3.619
29	4.639		3.686	44.513	74.486	34.478	32.125	20.714	12.608	5.457	5.681	3.621
30	4.498		3.994	48.238	63.388	41.513	33.882	20.714	9.838	5.419	5.615	3.450
31	4.358		4.328		58.198		31.925	16.969		5.686		3.534
Mean	5.709	2.808	2.272	18.954	135.572	66.107	34.740	21.420	10.313	6.465	6.883	4.051
Max	6.471	4.217	4.328	48.238	230.116	119.822	48.704	29.894	22.283	12.818	14.834	5.325
Min	4.358	2.139	1.650	4.690	52.275	34.478	24.656	13.151	5.600	5.324	4.990	3.450
Total	176.993	78.620	70.423	568.620	4202.726	1983.201	1076.951	664.010	309.396	200.426	206.500	125.567

Notes:

Estimated and modelled values are italicized.

Values in red denote high uncertainty based on extrapolation of the rating curve beyond 2 times the greatest measured discharge.

Appendix 7-A7. Summary of Daily Discharge [Q, m³/s] at Hydrometric Station Tenas-Hydro B, 2019

Drainage Area = 47.0 km²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.065	0.054	0.037	0.122	0.414	2.287	1.094	0.454	0.148	0.182	0.300	0.432
2	0.065	0.053	0.037	0.130	0.496	2.286	0.804	0.414	0.143	0.187	0.292	0.420
3	0.065	0.052	0.037	0.138	0.660	1.784	0.723	0.378	0.138	0.214	0.331	0.408
4	0.064	0.052	0.037	0.147	0.913	1.410	0.646	0.354	0.136	0.289	0.402	0.396
5	0.064	0.051	0.036	0.156	1.081	1.210	0.786	0.339	0.142	0.315	0.481	0.384
6	0.064	0.050	0.036	0.166	1.128	1.089	0.661	0.324	0.129	0.276	0.581	0.372
7	0.064	0.049	0.036	0.177	1.139	1.342	0.584	0.311	0.124	0.256	0.596	0.360
8	0.064	0.049	0.036	0.188	1.227	1.905	0.528	0.290	0.127	0.314	0.605	0.348
9	0.064	0.048	0.036	0.201	1.468	1.751	0.545	0.275	0.327	0.281	1.146	0.336
10	0.064	0.047	0.035	0.213	1.938	1.639	0.551	0.269	0.396	0.243	1.213	0.324
11	0.063	0.046	0.035	0.227	2.564	1.583	0.655	0.257	0.322	0.246	1.017	0.312
12	0.063	0.045	0.035	0.242	3.131	2.078	0.771	0.248	0.325	0.252	0.825	0.300
13	0.063	0.045	0.037	0.257	2.889	1.941	0.835	0.284	0.409	0.269	0.738	0.288
14	0.063	0.044	0.040	0.274	2.368	1.743	0.655	0.254	0.448	0.254	0.659	0.276
15	0.063	0.043	0.042	0.292	2.292	1.397	0.660	0.235	0.411	0.234	0.606	0.264
16	0.063	0.042	0.045	0.310	2.424	1.214	0.634	0.222	0.354	0.245	0.572	0.224
17	0.063	0.041	0.048	0.330	2.309	1.215	0.554	0.213	0.318	0.256	0.547	0.207
18	0.063	0.041	0.051	0.352	2.480	1.171	0.618	0.204	0.295	0.288	0.893	0.205
19	0.062	0.040	0.054	0.374	2.473	1.103	0.587	0.219	0.276	0.274	0.859	0.203
20	0.062	0.039	0.058	0.398	2.366	0.848	0.530	0.207	0.263	0.252	0.753	0.193
21	0.062	0.039	0.061	0.424	2.927	0.739	0.501	0.219	0.249	0.246	0.661	0.184
22	0.062	0.039	0.065	0.451	3.297	0.682	0.474	0.247	0.262	0.243	0.599	0.178
23	0.061	0.038	0.069	0.480	3.022	0.653	0.466	0.211	0.260	0.321	0.568	0.177
24	0.060	0.038	0.074	0.511	2.885	0.650	0.543	0.214	0.237	0.304	0.647	0.177
25	0.060	0.038	0.079	0.544	2.754	0.608	0.613	0.208	0.225	0.389	0.577	0.185
26	0.059	0.038	0.084	0.452	3.001	0.600	0.504	0.188	0.222	0.513	0.514	0.185
27	0.058	0.038	0.089	0.397	3.076	0.664	0.554	0.170	0.225	0.415	0.480	0.202
28	0.057	0.037	0.095	0.362	2.945	0.767	0.567	0.204	0.212	0.368	0.468	0.215
29	0.056		0.101	0.354	2.764	0.712	0.493	0.177	0.198	0.350	0.456	0.211
30	0.056		0.108	0.369	2.551	0.670	0.444	0.163	0.186	0.325	0.444	0.199
31	0.055		0.114		2.417		0.437	0.157		0.315		0.184
Mean	0.062	0.044	0.056	0.301	2.174	1.258	0.614	0.255	0.250	0.288	0.628	0.269
Max	0.065	0.054	0.114	0.544	3.297	2.287	1.094	0.454	0.448	0.513	1.213	0.432
Min	0.055	0.037	0.035	0.122	0.414	0.600	0.437	0.157	0.124	0.182	0.292	0.177
Total	1.917	1.235	1.747	9.040	67.399	37.740	19.019	7.910	7.507	8.915	18.831	8.350

Notes:

Estimated and modelled values are italicized.

Values in red denote high uncertainty based on extrapolation of the rating curve beyond 2 times the greatest measured discharge.

Appendix 7-A8. Summary of Daily Discharge [Q, m³/s] at Hydrometric Station Goathorn-Hydro, 2019

Drainage Area = 121.6 km²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.229	0.166	0.149	0.437	1.207	5.253	4.140	2.282	0.798	0.773	1.095	1.466
2	0.226	0.166	0.147	0.465	1.389	5.547	3.766	2.001	0.772	0.752	1.058	1.425
3	0.223	0.167	0.144	0.494	1.832	4.416	3.435	1.792	0.758	0.783	1.110	1.385
4	0.219	0.167	0.142	0.524	2.554	3.179	3.179	1.664	0.765	0.955	1.232	1.345
5	0.216	0.167	0.139	0.557	3.120	2.674	3.404	1.647	0.801	1.086	1.630	1.305
6	0.213	0.167	0.137	0.592	3.158	2.244	3.053	1.581	0.802	1.033	1.963	1.264
7	0.210	0.168	0.135	0.629	3.123	2.876	2.519	1.567	0.716	0.998	2.015	1.224
8	0.206	0.168	0.132	0.668	3.197	4.026	2.165	1.463	0.703	1.111	2.046	1.184
9	0.203	0.168	0.130	0.709	3.534	3.913	2.454	1.361	1.504	1.105	3.859	1.143
10	0.200	0.168	0.128	0.754	4.202	3.819	2.851	1.271	3.463	1.002	4.084	1.103
11	0.197	0.168	0.123	0.800	5.380	3.551	4.165	1.165	2.237	0.989	3.426	1.063
12	0.193	0.169	0.131	0.850	6.663	4.974	5.359	1.116	1.788	0.964	2.782	1.022
13	0.190	0.169	0.139	0.903	6.193	5.797	4.708	1.575	2.008	0.976	2.492	0.982
14	0.187	0.169	0.147	0.960	4.938	5.205	4.036	1.420	2.370	0.966	2.226	0.942
15	0.184	0.169	0.157	1.019	4.534	4.125	4.012	1.494	2.112	0.933	2.050	0.902
16	0.180	0.169	0.166	1.083	4.804	3.568	3.633	1.407	1.778	0.948	1.933	0.768
17	0.177	0.170	0.177	1.150	4.305	3.686	3.236	1.265	1.506	1.075	1.852	0.711
18	0.174	0.170	0.188	1.222	4.837	3.590	3.440	1.115	1.301	1.230	3.009	0.704
19	0.171	0.170	0.199	1.298	5.073	3.693	3.592	1.061	1.173	1.146	2.897	0.699
20	0.167	0.170	0.212	1.379	4.571	2.770	3.136	1.139	1.086	1.076	2.541	0.663
21	0.164	0.168	0.225	1.465	5.116	2.083	2.888	1.066	1.060	1.034	2.232	0.635
22	0.164	0.165	0.239	1.556	6.049	1.844	2.669	1.327	1.010	1.019	2.027	0.612
23	0.164	0.163	0.254	1.653	5.470	1.789	2.937	1.357	1.190	1.177	1.920	0.611
24	0.165	0.161	0.270	1.756	5.140	2.065	3.147	1.206	1.112	1.166	2.186	0.609
25	0.165	0.158	0.287	1.865	5.156	1.942	4.373	1.286	0.986	1.285	1.952	0.636
26	0.165	0.156	0.304	1.548	5.493	1.861	3.450	1.177	0.933	2.020	1.739	0.637
27	0.165	0.154	0.323	1.352	5.705	2.090	3.355	0.997	0.914	1.647	1.627	0.695
28	0.165	0.151	0.344	1.201	5.617	2.842	4.261	0.971	0.876	1.412	1.587	0.739
29	0.166		0.365	1.163	5.572	2.874	3.456	1.006	0.837	1.314	1.546	0.725
30	0.166		0.388	1.136	5.319	2.646	2.898	0.906	0.810	1.178	1.506	0.683
31	0.166		0.412		5.215		2.488	0.836		1.132		0.633
Mean	0.186	0.166	0.207	1.040	4.467	3.365	3.426	1.339	1.272	1.106	2.121	0.920
Max	0.229	0.170	0.412	1.865	6.663	5.797	5.359	2.282	3.463	2.020	4.084	1.466
Min	0.164	0.151	0.123	0.437	1.207	1.789	2.165	0.836	0.703	0.752	1.058	0.609
Total	5.781	4.640	6.432	31.186	138.462	100.943	106.207	41.520	38.169	34.285	63.622	28.514

Notes:

Estimated and modelled values are italicized.

Values in red denote high uncertainty based on extrapolation of the rating curve beyond 2 times the greatest measured discharge.

Appendix 7-A9. Summary of Daily Discharge [Q, m³/s] at Hydrometric Station Telkwa-Hydro, 2019

Drainage Area = 966.9 km²

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3.534	3.297	2.975	7.174	14.236	128.537	49.218	21.265	16.472	7.456	7.783	7.583
2	3.518	3.304	2.926	7.553	15.857	123.224	53.059	19.996	16.735	7.041	7.521	7.860
3	3.503	3.311	2.877	7.952	18.836	102.656	54.550	18.672	19.368	7.676	11.834	9.097
4	3.487	3.318	2.827	8.372	25.986	70.844	52.520	19.901	21.006	8.943	19.308	8.839
5	3.472	3.324	2.778	8.815	32.952	57.120	50.868	23.582	22.227	9.113	27.173	7.721
6	3.456	3.331	2.729	9.280	37.559	48.363	42.472	27.317	19.791	8.417	23.771	6.686
7	3.441	3.338	2.680	9.771	39.961	49.792	36.568	30.259	15.147	7.360	18.172	6.047
8	3.425	3.345	2.630	10.287	43.044	55.899	35.802	28.896	15.990	11.686	19.526	5.565
9	3.410	3.351	2.581	10.830	51.102	51.689	44.944	28.906	22.127	10.360	93.535	4.871
10	3.394	3.358	2.532	11.403	73.657	51.467	43.063	26.275	27.847	8.116	56.180	4.733
11	3.378	3.365	2.433	12.005	89.157	48.200	39.328	20.640	17.922	7.349	36.551	5.234
12	3.363	3.372	2.562	12.640	104.801	67.355	41.334	19.301	15.065	6.966	26.684	5.125
13	3.347	3.378	2.697	13.308	100.092	86.922	41.242	20.253	17.766	7.907	22.812	5.251
14	3.332	3.385	2.839	14.011	83.409	79.565	35.112	18.536	23.836	7.288	21.195	5.074
15	3.316	3.392	2.989	14.751	81.674	73.219	35.142	20.436	28.967	6.622	18.555	4.449
16	3.301	3.399	3.147	15.530	84.048	64.656	32.096	26.493	20.295	6.967	18.647	3.693
17	3.285	3.405	3.314	16.351	77.715	62.093	30.658	22.849	15.234	7.789	18.229	4.235
18	3.270	3.412	3.489	17.215	86.764	63.355	35.800	21.573	10.911	8.883	43.089	4.477
19	3.254	3.419	3.673	18.125	94.732	68.216	48.269	25.725	10.321	8.534	36.032	4.422
20	3.239	3.419	3.867	19.082	84.794	52.481	37.443	22.513	14.100	7.687	25.230	4.208
21	3.223	3.370	4.072	20.091	101.005	39.103	30.283	17.215	15.817	7.358	20.300	3.955
22	3.230	3.320	4.287	21.152	116.901	33.695	25.746	22.423	16.638	7.506	17.393	3.723
23	3.237	3.271	4.513	22.270	115.601	32.267	25.506	23.008	25.520	10.360	17.618	3.189
24	3.243	3.222	4.752	20.862	115.642	39.018	28.504	20.815	16.946	14.240	26.126	3.307
25	3.250	3.173	5.003	19.454	102.544	35.005	29.382	29.314	16.005	17.262	20.879	3.491
26	3.257	3.123	5.267	16.516	94.142	31.445	24.375	30.199	17.145	26.111	16.560	2.703
27	3.264	3.074	5.545	15.194	111.357	30.760	25.873	19.981	17.986	21.691	13.960	3.035
28	3.270	3.025	5.838	14.051	128.926	36.951	36.576	27.959	14.174	17.343	10.741	3.497
29	3.277		6.147	13.809	131.468	39.468	36.160	30.530	9.811	15.189	8.860	3.432
30	3.284		6.472	13.505	131.150	39.304	28.061	20.564	8.429	8.603	8.204	3.239
31	3.291		6.814		128.521		23.625	18.307		8.062		3.253
Mean	3.340	3.314	3.782	14.045	81.214	58.756	37.212	23.345	17.653	10.190	23.749	4.903
Max	3.534	3.419	6.814	22.270	131.468	128.537	54.550	30.530	28.967	26.111	93.535	9.097
Min	3.223	3.025	2.433	7.174	14.236	30.760	23.625	17.215	8.429	6.622	7.521	2.703
Total	103.550	92.801	117.255	421.357	2517.634	1762.669	1153.579	723.705	529.598	315.881	712.465	151.992

Notes:

Estimated and modelled values are italicized.

Values in red denote high uncertainty based on extrapolation of the rating curve beyond 2 times the greatest measured discharge.

Appendix 8-A *Water Quality Analytical Results, Tenas Project,
2017 to 2019*

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS01	WQS02	WQS04	WQS03	WQS06	WQS05	WQS08	WQS09	WQS10	WQS10	WQS11	WQS12	WQS01	WQS02
Date	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	3-May-2017	3-May-2017	3-May-2017	3-May-2017	21-Jun-2017	20-Jun-2017
Time	10:25:00 AM	-	9:53:00 AM	2:50:00 PM	11:05:00 AM	1:15:00 PM	1:23:00 AM	1:55:00 PM	12:52:00 AM	4:00:00 PM	-	3:30:00 PM	2:50:00 PM	8:50:00 AM	1:00:00 PM
QAQC	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular
ALS Sample ID	L1922134-9	L1922134-15	L1922134-7	L1922134-11	L1922134-8	L1922134-14	L1922134-13	L1922134-10	L1922134-12	L1922134-3	L1922134-4	L1922134-1	L1922134-2	L1947234-7	L1947234-1
<i>In Situ</i>															
Temperature (°C)	0.10	0.10	0.60	1.80	0.10	2.40	2.10	3.10	3.10	-	-	7.70	7.40	3.90	6.60
pH	7.64	7.64	8.56	8.03	7.96	7.96	8.07	7.90	8.05	8.07	8.07	7.40	7.52	7.39	7.08
Conductivity (µS/cm)	57.6	57.6	57.0	60.0	46.2	64.7	63.2	41.3	46.0	55.4	55.4	53.4	50.9	60.1	59.5
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO ₃)	57.4	57.1	55.5	56.1	48.3	57.4	56.8	34.6	38.5	40.2	39.4	37.4	36.0	51.0	45.9
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Suspended Solids	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Total (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.780	0.540	<0.50	<0.50
Fluoride (F)	0.0250	0.0260	0.0270	0.0270	0.0270	0.0270	0.0280	0.0230	0.0230	0.0260	0.0260	0.0330	0.0330	0.0230	0.0220
Sulphate (SO ₄)	0.930	0.930	1.02	1.24	<0.30	6.35	4.17	1.91	2.45	2.60	2.60	3.88	3.85	1.90	1.73
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	0.368	0.339	0.382	0.415	0.545	0.305	0.373	0.228	0.255	0.199	0.213	0.315	0.300	0.103	0.0980
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.00530	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0864	0.0860	0.0772	0.0710	0.0213	0.0479	0.0581	0.0451	0.0477	0.0321	0.0322	0.0104	0.0123	0.0118	0.00970
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.0502	0.0580	0.0450	0.0390	0.0240	0.0126	0.0220	0.0145	0.0161	0.00630	0.00630	0.0210	0.0238	0.0106	0.0242
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	15.5	14.9	14.4	17.2	22.4	12.6	14.3	9.21	10.2	8.28	7.86	10.1	10.3	2.97	3.14
Dissolved Organic Carbon	13.4	13.3	13.1	15.5	20.5	11.8	13.2	8.07	9.01	7.19	7.57	9.71	9.75	2.83	2.63
Total Inorganic Carbon	12.9	12.8	9.27	12.4	8.86	11.3	12.0	8.01	8.90	8.19	8.56	7.92	7.38	11.8	10.7
Dissolved Inorganic Carbon	12.3	11.8	10.6	11.5	9.55	10.2	10.3	7.19	7.93	5.23	6.23	7.67	6.93	11.7	10.7
Cyanide															
Cyanide, Total	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020
Cyanide, Weak Acid Dissociable	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020
Cyanide, Free	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Metals															
Aluminum (Al)	2.23	1.59	2.30	1.86	1.28	0.565	1.67	0.676	0.809	0.422	0.437	0.800	0.899	0.465	1.000
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000160	0.000190
Arsenic (As)	0.000920	0.000880	0.000880	0.000770	0.000810	0.000580	0.000770	0.000460	0.000520	0.000400	0.000370	0.000660	0.000690	0.000720	0.000860
Barium (Ba)	0.0519	0.0472	0.0463	0.0409	0.0573	0.0653	0.0595	0.0335	0.0393	0.0331	0.0328	0.0292	0.0312	0.0225	0.0268
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0170	0.0160	0.0140	0.0130	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000210	0.0000185	0.0000185	0.0000137	0.0000180	0.0000160	0.0000195	0.0000168	0.0000206	0.0000150	0.0000109	0.0000115	0.0000153	0.0000059	0.0000105
Calcium (Ca)	17.2	17.2	16.6	16.8	10.4	16.6	16.9	10.5	11.9	12.0	11.9	10.6	10.4	15.3	14.0
Chromium (Cr)	0.00226	0.00172	0.00222	0.00183	0.00163	0.000740	0.00160	0.000630	0.000770	0.000530	0.000490	0.000950	0.00103	0.000730	0.00113
Cobalt (Co)	0.000990	0.000920	0.000780	0.000620	0.000220	0.000400	0.000620	0.000330	0.000400	0.000190	0.000190	0.000360	0.000400	0.000280	0.000610
Copper (Cu)	0.00491	0.00463	0.00501	0.00527	0.00317	0.00461	0.00527	0.00238	0.00291	0.00224	0.00212	0.00217	0.00242	0.00177	0.00279
Iron (Fe)	1.79	1.51	1.54	1.23	0.683	0.865	1.30	0.973	1.06	0.639	0.639	0.926	0.987	0.301	0.671
Lead (Pb)	0.000427	0.000388	0.000346	0.000280	0.000120	0.000234	0.000337	0.000341	0.000366	0.000162	0.000155	0.000238	0.000276	0.0000740	0.000202
Lithium (Li)	0.00130	0.00110	0.00130	0.00120	0.00150	<0.0010	0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	4.24	4.05	4.02	3.95	5.76	4.05	4.12	2.32	2.61	2.54	2.51	2.95	2.91	2.65	2.65

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS01	WQS02	WQS04	WQS03	WQS06	WQS05	WQS08	WQS09	WQS10	WQS10	WQS11	WQS12	WQS01	WQS02
Date	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	3-May-2017	3-May-2017	3-May-2017	3-May-2017	21-Jun-2017	20-Jun-2017
Time	10:25:00 AM	-	9:53:00 AM	2:50:00 PM	11:05:00 AM	1:15:00 PM	1:23:00 AM	1:55:00 PM	12:52:00 AM	4:00:00 PM	-	3:30:00 PM	2:50:00 PM	8:50:00 AM	1:00:00 PM
QAQC	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular
ALS Sample ID	L1922134-9	L1922134-15	L1922134-7	L1922134-11	L1922134-8	L1922134-14	L1922134-13	L1922134-10	L1922134-12	L1922134-3	L1922134-4	L1922134-1	L1922134-2	L1947234-7	L1947234-1
Total Metals (cont'd)															
Manganese (Mn)	0.0581	0.0584	0.0435	0.0381	0.00946	0.0275	0.0397	0.0596	0.0640	0.0294	0.0294	0.0470	0.0502	0.0160	0.0407
Mercury (Hg)	0.0000084	0.0000088	0.0000083	0.0000078	0.0000112	0.0000054	0.0000077	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.0000880	0.0000820	0.0000940	0.0001	0.0000780	0.000308	0.000233	0.000297	0.000298	0.000299	0.000311	0.000255	0.000252	0.0000700	0.0000740
Nickel (Ni)	0.00204	0.00198	0.00187	0.00162	0.000900	0.00109	0.00156	0.000510	0.000730	0.000700	<0.00050	0.00121	0.00134	<0.00050	0.00101
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.513	0.400	0.573	0.516	0.387	0.406	0.544	0.334	0.368	0.326	0.336	0.687	0.674	0.198	0.262
Selenium (Se)	0.0000640	<0.000050	<0.000050	<0.000050	<0.000050	0.0000730	0.0000580	0.0000690	0.0000730	0.0000590	0.0000570	<0.000050	0.0000500	<0.000050	<0.000050
Silicon (Si)	7.82	6.12	8.51	7.80	5.26	3.73	6.82	4.51	4.71	4.13	4.01	5.20	4.97	3.79	4.46
Silver (Ag)	0.0000160	0.0000130	0.0000160	0.0000170	0.0000240	0.0000120	0.0000160	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2.80	2.60	2.80	2.80	2.30	2.30	2.60	<2.0	<2.0	2.10	2.00	2.50	2.50	2.10	<2.0
Strontium (Sr)	0.0864	0.0834	0.0820	0.0802	0.0721	0.0627	0.0738	0.0553	0.0585	0.0588	0.0585	0.0601	0.0600	0.0709	0.0654
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	0.0000120	<0.000010	0.0000120	0.0000120	<0.000010	<0.000010	0.0000130	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.0690	0.0400	0.0790	0.0660	0.0400	0.0130	0.0880	0.0200	0.0220	<0.015	0.0120	<0.028	<0.028	0.0110	0.0220
Uranium (U)	0.000145	0.000130	0.000137	0.000130	0.0000310	0.0000560	0.0001	0.0000560	0.0000630	0.0000510	0.0000490	0.0000620	0.0000660	0.0000410	0.0000390
Vanadium (V)	0.00488	0.00367	0.00504	0.00401	0.00232	0.00163	0.00355	0.00184	0.00218	0.00134	0.00137	0.00247	0.00267	0.00179	0.00270
Zinc (Zn)	0.00630	0.00610	0.00450	0.00370	0.00380	0.00400	0.00500	0.00300	0.00340	<0.0030	<0.0030	0.00380	0.00440	<0.0030	0.00310
Dissolved Metals															
Aluminum (Al)	0.140	0.144	0.147	0.144	0.254	0.0782	0.106	0.0777	0.0772	0.0757	0.0759	0.0828	0.0817	0.0126	0.0158
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	0.000160
Arsenic (As)	0.000300	0.000300	0.000320	0.000350	0.000560	0.000260	0.000300	0.000180	0.000200	0.000210	0.000200	0.000290	0.000280	0.000530	0.000500
Barium (Ba)	0.0308	0.0306	0.0278	0.0266	0.0523	0.0571	0.0427	0.0238	0.0275	0.0275	0.0274	0.0200	0.0198	0.0214	0.0201
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0140	0.0140	0.0130	0.0120	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000127	0.0000065	0.0000054	<0.0000050	<0.0000050	0.0000051	0.0000064	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	17.1	16.9	16.5	16.6	10.2	16.6	16.7	10.5	11.6	12.1	11.8	10.6	10.2	16.0	14.3
Chromium (Cr)	0.000310	0.000350	0.000300	0.000390	0.000330	0.000180	0.000260	0.000210	0.000180	0.000210	0.000200	0.000190	<0.00010	0.000240	0.000200
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00237	0.00236	0.00281	0.00333	0.00252	0.00343	0.00339	0.00137	0.00162	0.00153	0.00150	0.00127	0.00124	0.00105	0.00119
Iron (Fe)	0.134	0.132	0.144	0.139	0.190	0.111	0.125	0.237	0.220	0.256	0.251	0.152	0.147	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	0.0000650	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	3.58	3.59	3.44	3.59	5.53	3.91	3.66	2.01	2.32	2.39	2.38	2.68	2.55	2.67	2.45
Manganese (Mn)	0.00327	0.00294	0.00248	0.00223	0.00612	0.00255	0.00253	0.00385	0.00345	0.00635	0.00572	0.00547	0.00340	0.00225	0.00625
Mercury (Hg)	0.0000055	0.0000058	0.0000074	0.0000069	0.0000099	<0.0000050	0.0000068	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.0000610	0.0000600	0.0000630	0.0000690	<0.000050	0.000289	0.000197	0.000265	0.						

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS01	WQS02	WQS04	WQS03	WQS06	WQS05	WQS08	WQS09	WQS10	WQS10	WQS11	WQS12	WQS01	WQS02
Date	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	4-May-2017	3-May-2017	3-May-2017	3-May-2017	3-May-2017	21-Jun-2017	20-Jun-2017
Time	10:25:00 AM	-	9:53:00 AM	2:50:00 PM	11:05:00 AM	1:15:00 PM	1:23:00 AM	1:55:00 PM	12:52:00 AM	4:00:00 PM	-	3:30:00 PM	2:50:00 PM	8:50:00 AM	1:00:00 PM
QAQC	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular
ALS Sample ID	L1922134-9	L1922134-15	L1922134-7	L1922134-11	L1922134-8	L1922134-14	L1922134-13	L1922134-10	L1922134-12	L1922134-3	L1922134-4	L1922134-1	L1922134-2	L1947234-7	L1947234-1
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Benzo[b]fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Benzo[b,j]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Chrysene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Fluorene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Indeno[1,2,3-c,d]pyrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Pyrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	101	87.3	91.7	91.1	77.9	99.6	98.6	102	84.3	85.4	80.9	105	83.0	66.5	65.0
Chrysene d12	90.6	76.6	77.9	82.6	62.0	88.3	88.3	89.4	76.9	87.9	84.9	96.2	86.9	65.5	61.1
Naphthalene d8	90.2	75.2	84.4	82.4	69.9	89.3	90.6	91.3	74.5	84.9	83.2	96.6	82.2	70.4	67.1
Phenanthrene d10	102	88.6	91.8	92.9	75.3	102	102	100	84.5	97.2	94.2	106	95.3	74.1	71.8
Aggregate Organics															
BOD	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
COD	41.0	41.0	46.0	45.0	69.0	35.0	37.0	25.0	33.0	26.0	23.0	27.0	32.0	<20	21.0
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	-
Volatile Organic Compounds															
Benzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Methyl t-butyl ether (MTBE)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045
ortho-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075
4-Bromofluorobenzene (SS)	103	102	101	103	103	105	103	103	103	101	99.9	101	101	89.7	85.2
1,4-Difluorobenzene (SS)	101	101	101	101	101	101	101	101	101	101	101	102	101	94.5	92.9
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
VPH (C6-C10)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
3,4-Dichlorotoluene (SS)	101	98.6	92.3	96.1	99.4	95.4	104	100	95.9	101	91.4	97.4	102	89.2	94.1
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS04	WQS03	WQS06	WQS05	WQS08	WQS09	WQS09	WQS10	WQS11	WQS12	WQS01	WQS02	WQS04	WQS03	WQS06
Date	20-Jun-2017	21-Jun-2017	20-Jun-2017	20-Jun-2017	20-Jun-2017	20-Jun-2017	20-Jun-2017	21-Jun-2017	21-Jun-2017	21-Jun-2017	26-Jul-2017	27-Jul-2017	27-Jul-2017	26-Jul-2017	27-Jul-2017
Time	2:30:00 PM	9:20:00 AM	5:00:00 PM	3:40:00 PM	3:15:00 PM	4:10:00 PM	-	12:10:00 PM	11:30:00 AM	11:00:00 AM	12:15:00 PM	10:09:00 AM	11:13:00 AM	12:59:00 PM	1:45:00 PM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L1947234-2	L1947234-8	L1947234-6	L1947234-4	L1947234-3	L1947234-5	L1947234-13	L1947234-11	L1947234-10	L1947234-9	L1966679-1	L1966679-2	L1966679-4	L1966679-3	L1966679-6
<i>In Situ</i>															
Temperature (°C)	8.40	4.90	7.00	7.80	7.80	8.20	8.20	7.00	8.60	8.60	9.20	8.80	10.50	9.50	10.30
pH	7.17	7.75	7.08	7.34	6.81	7.52	7.52	7.05	7.45	7.44	7.24	7.36	7.58	7.85	7.48
Conductivity (µS/cm)	65.5	85.9	73.2	70.4	34.3	42.7	42.7	40.5	37.8	37.5	83.4	86.3	97.2	205	101
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	-	-	-	-	-	-	-	-	5.20	5.70	6.70	19.0	5.10
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	120	124	134	288	139
Hardness (as CaCO ₃)	46.4	74.6	50.6	50.2	24.0	28.8	27.5	28.9	26.2	25.6	57.5	57.3	63.8	143	61.4
pH	-	-	-	-	-	-	-	-	-	-	8.02	8.08	8.10	8.31	7.76
Total Suspended Solids	-	-	-	-	-	-	-	-	-	-	<3.0	<3.0	<3.0	<3.0	3.70
Total Dissolved Solids	-	-	-	-	-	-	-	-	-	-	87.0	80.0	87.0	179	95.0
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	2.82	1.88	2.58	0.420	3.84
Acidity (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	1.50	1.50	1.50	<1.0	2.00
Alkalinity, Total (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	68.0	73.0	68.0	184	30.5
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0230	0.0360	0.0300	0.0270	0.0200	0.0220	0.0220	0.0220	0.0210	0.0210	0.0230	0.0250	0.0270	0.0640	0.0320
Sulphate (SO ₄)	1.80	0.490	22.5	12.9	3.36	6.10	6.08	4.66	3.78	3.78	2.28	2.23	2.60	1.79	36.2
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	<0.030	<0.030	<0.030	0.107	0.0400
Total Kjeldahl Nitrogen	0.110	0.289	0.0890	0.103	0.0960	0.0960	0.0950	0.0920	0.128	0.128	<0.050	<0.050	<0.050	0.0840	<0.050
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.00630	0.00510	0.0447	0.0263	0.00990	0.0143	0.0142	0.0118	0.0198	0.0205	<0.0050	<0.0050	<0.0050	0.0217	0.0305
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.0318	0.00390	0.0328	0.0175	0.0411	0.0368	0.0364	0.0172	0.0321	0.0381	0.00310	0.00220	0.00320	0.00290	0.00600
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	3.74	13.6	2.62	2.99	2.29	2.30	2.43	2.33	2.69	3.37	1.10	1.13	1.28	4.60	0.710
Dissolved Organic Carbon	2.59	11.8	1.94	2.28	1.77	1.91	1.90	1.76	2.57	2.70	1.29	1.08	1.39	4.50	0.670
Total Inorganic Carbon	11.1	16.6	7.36	9.05	5.48	5.86	5.88	6.30	5.54	5.78	14.4	15.2	16.8	38.2	7.00
Dissolved Inorganic Carbon	11.0	16.4	6.86	8.75	5.14	5.70	5.66	6.07	5.30	5.37	14.8	15.5	17.1	37.9	7.61
Cyanide															
Cyanide, Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	-	-	-	-	-
Cyanide, Weak Acid Dissociable	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	-	-	-	-	-
Cyanide, Free	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-
Total Metals															
Aluminum (Al)	1.18	0.171	0.647	0.849	1.19	1.10	1.17	0.585	1.22	1.24	0.0967	0.0619	0.108	0.0751	0.250
Antimony (Sb)	0.000180	<0.00010	0.000110	0.000150	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000270	0.000260	0.000240	<0.00010	0.000110
Arsenic (As)	0.000900	0.000720	0.000520	0.000720	0.000420	0.000460	0.000470	0.000320	0.000600	0.000610	0.000650	0.000550	0.000480	0.000790	0.000220
Barium (Ba)	0.0282	0.0667	0.0544	0.0398	0.0361	0.0397	0.0401	0.0313	0.0325	0.0333	0.0257	0.0254	0.0288	0.121	0.0494
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000790	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0120	0.0110	0.0160	<0.010
Cadmium (Cd)	0.0000081	0.0000054	0.0000521	0.0000293	0.0000298	0.0000345	0.0000295	0.0000188	0.0000154	0.0000172	<0.0000050	<0.0000050	<0.0000050	0.0000087	0.0000483
Calcium (Ca)	14.6	15.5	15.8	15.3	7.89	9.66	9.46	9.12	8.26	8.44	17.9	19.3	19.3	28.9	19.5
Chromium (Cr)	0.00126	0.000290	0.000660	0.000940	0.000720	0.000720	0.000730	0.000490	0.001000	0.00101	0.000320	0.000300	0.000320	<0.00010	0.000230
Cobalt (Co)	0.000640	<0.00010	0.000570	0.000590	0.000550	0.000550	0.000590	0.000290	0.000600	0.000630	<0.00010	<0.00010	<0.00010	<0.00010	0.000190
Copper (Cu)	0.00328	0.00187	0.00610	0.00450	0.00346	0.00382	0.00390	0.00212	0.00255	0.00260	0.000800	0.000850	0.000870	0.000700	0.00345
Iron (Fe)	0.776	0.119	0.787	0.779	1.05	1.01	1.06	0.521	1.25	1.26	0.0600	0.0470	0.0790	0.0480	0.248
Lead (Pb)	0.000193	<0.000050	0.000250	0.000232	0.00111	0.000942	0.000973	0.000410	0.000341	0.000356	<0.000050	<0.000050	<0.000050	<0.000050	0.0000870
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00200	<0.0010
Magnesium (Mg)	2.83	8.41	2.66	2.75	1.52	1.80	1.80	1.55	1.51	1.53	3.01	3.56	3.53	15.7	3.00

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS04	WQS03	WQS06	WQS05	WQS08	WQS09	WQS09	WQS10	WQS11	WQS12	WQS01	WQS02	WQS04	WQS03	WQS06
Date	20-Jun-2017	21-Jun-2017	20-Jun-2017	20-Jun-2017	20-Jun-2017	20-Jun-2017	20-Jun-2017	21-Jun-2017	21-Jun-2017	21-Jun-2017	26-Jul-2017	27-Jul-2017	27-Jul-2017	26-Jul-2017	27-Jul-2017
Time	2:30:00 PM	9:20:00 AM	5:00:00 PM	3:40:00 PM	3:15:00 PM	4:10:00 PM	-	12:10:00 PM	11:30:00 AM	11:00:00 AM	12:15:00 PM	10:09:00 AM	11:13:00 AM	12:59:00 PM	1:45:00 PM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L1947234-2	L1947234-8	L1947234-6	L1947234-4	L1947234-3	L1947234-5	L1947234-13	L1947234-11	L1947234-10	L1947234-9	L1966679-1	L1966679-2	L1966679-4	L1966679-3	L1966679-6
Total Metals (cont'd)															
Manganese (Mn)	0.0414	0.00195	0.0329	0.0353	0.0494	0.0480	0.0621	0.0242	0.0493	0.0527	0.00326	0.00336	0.00663	0.00241	0.0117
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.0000780	0.000109	0.000536	0.000320	0.000485	0.000490	0.000453	0.000586	0.000352	0.000335	0.0000780	0.0000830	0.0000980	0.000324	0.000625
Nickel (Ni)	0.00113	<0.00050	0.00102	0.00101	0.000660	0.000710	0.000710	<0.00050	0.00113	0.00116	<0.00050	<0.00050	<0.00050	<0.00050	0.000510
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.292	0.276	0.418	0.366	0.390	0.396	0.394	0.283	0.441	0.447	0.134	0.172	0.182	0.409	0.372
Selenium (Se)	<0.000050	<0.000050	0.0000760	0.0000740	0.0000820	0.0000660	0.0000780	0.0000550	<0.000050	<0.000050	0.0000550	<0.000050	<0.000050	<0.000050	0.000115
Silicon (Si)	4.80	3.45	3.28	3.91	3.87	3.88	3.94	3.19	4.03	4.15	2.95	2.97	3.06	3.16	2.91
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	0.0000170	<0.000010	0.0000150	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2.00	3.70	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.70	2.80	2.80	8.90	<2.0
Strontium (Sr)	0.0684	0.107	0.0542	0.0615	0.0425	0.0471	0.0468	0.0459	0.0386	0.0384	0.0869	0.0896	0.0904	0.206	0.0654
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.0260	<0.010	0.0130	0.0200	0.0340	0.0259	0.0310	0.0180	0.0380	0.0410	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000410	0.0000260	0.0000720	0.0000560	0.0000560	0.0000570	0.0000560	0.0000430	0.0000410	0.0000430	0.0000470	0.0000540	0.0000540	0.000122	0.0000510
Vanadium (V)	0.00292	0.000760	0.00164	0.00227	0.00266	0.00261	0.00258	0.00156	0.00318	0.00122	0.00113	0.000990	0.000580	0.000580	0.000650
Zinc (Zn)	0.00330	<0.0030	0.00680	0.00470	0.00730	0.00560	0.00550	0.00330	0.00500	0.00460	<0.0030	<0.0030	<0.0030	<0.0030	0.00420
Dissolved Metals															
Aluminum (Al)	0.0166	0.0648	0.0406	0.0335	0.0272	0.0272	0.0248	0.0257	0.0213	0.0216	0.00620	0.00670	0.00900	0.0307	0.0306
Antimony (Sb)	0.000140	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000250	0.000240	0.000220	<0.00010	<0.00010
Arsenic (As)	0.000450	0.000660	0.000200	0.000310	0.000140	0.000170	0.000170	0.000150	0.000200	0.000220	0.000630	0.000490	0.000420	0.000750	0.000130
Barium (Ba)	0.0207	0.0716	0.0467	0.0345	0.0234	0.0259	0.0245	0.0260	0.0210	0.0206	0.0253	0.0259	0.0287	0.133	0.0480
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01000	0.0160	<0.010
Cadmium (Cd)	<0.0000050	0.0000052	0.0000322	0.0000144	0.0000087	0.0000075	0.0000090	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000374
Calcium (Ca)	14.5	15.6	16.0	15.8	7.74	9.21	8.82	9.26	8.51	8.32	18.0	17.7	19.8	29.9	19.6
Chromium (Cr)	0.000190	0.000200	<0.00010	0.000120	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000190	0.000200	0.000180	<0.00010	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00132	0.00178	0.00322	0.00249	0.00110	0.00135	0.00122	0.00103	0.000950	0.000940	0.000500	0.000510	0.000580	0.000620	0.00180
Iron (Fe)	<0.030	0.0410	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00190	<0.0010
Magnesium (Mg)	2.48	8.66	2.56	2.59	1.14	1.40	1.34	1.40	1.20	1.17	3.07	3.16	3.51	16.5	3.01
Manganese (Mn)	0.00533	0.000680	0.00764	0.00649	0.00573	0.00550	0.00336	0.00427	0.00645	0.00553	0.000270	0.000460	0.00112	0.000330	0.00470
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.0000720	0.000107	0.000542	0.000312	0.000486	0.000473	0.000431	0.000454	0.000331	0.000331	0.0000730	0.0000800	0.0001	0.000346	0.000589
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.167	0.286	0.333	0.256	0.194	0.212	0.205	0.205	0.312	0.301	0.125	0.127	0.167	0.450	0.347
Selenium (Se)	<0.000050	<0.000050	0.0000910	0.0000590	0.0000570	0.0000590	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000102
Silicon (Si)	2.87	3.17	2.31	2.51	2.01	2.09	1.90	2.22	2.05	2.03	2.60	2.66	2.84	3.06	2.40
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2.00	3.90	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.70	2.70	2.80	9.40	<2.0
Strontium (Sr)	0.0662	0.105	0.0531	0.0618	0.0396	0.0430	0.0405	0.0448	0.0369	0.0364	0.0877	0.0851	0.0922	0.213	0.0654
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000330	0.0000240	0.0000570	0.0000510	0.0000270	0.0000310	0.0000310	0.0000290	0.0000200	0.0000190	0.0000460	0.0000450	0.0000550	0.000119	0.0000480
Vanadium (V)	0.000850	<0.00050	<0.00050	0.000510	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00108	0.000880	0.000770	0.000510	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acenaphthylene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Anthracene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS04	WQS03	WQS06	WQS05	WQS08	WQS09	WQS09	WQS10	WQS11	WQS12	WQS01	WQS02	WQS04	WQS03	WQS06
Date	20-Jun-2017	21-Jun-2017	20-Jun-2017	20-Jun-2017	20-Jun-2017	20-Jun-2017	20-Jun-2017	21-Jun-2017	21-Jun-2017	21-Jun-2017	26-Jul-2017	27-Jul-2017	27-Jul-2017	26-Jul-2017	27-Jul-2017
Time	2:30:00 PM	9:20:00 AM	5:00:00 PM	3:40:00 PM	3:15:00 PM	4:10:00 PM	-	12:10:00 PM	11:30:00 AM	11:00:00 AM	12:15:00 PM	10:09:00 AM	11:13:00 AM	12:59:00 PM	1:45:00 PM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L1947234-2	L1947234-8	L1947234-6	L1947234-4	L1947234-3	L1947234-5	L1947234-13	L1947234-11	L1947234-10	L1947234-9	L1966679-1	L1966679-2	L1966679-4	L1966679-3	L1966679-6
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Benzo[b]fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	-
Benzo[b,j]fluoranthene	-	-	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Chrysene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Fluorene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Indeno[1,2,3-c,d]pyrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Pyrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	71.7	69.0	69.8	73.1	71.3	62.6	73.6	75.7	79.0	66.1	95.4	86.4	96.6	95.9	87.3
Chrysene d12	65.9	69.6	68.7	71.1	67.8	63.6	65.3	71.6	69.5	65.5	112	106	114	113	104
Naphthalene d8	74.9	75.1	75.6	76.4	73.7	70.1	75.0	79.6	80.0	73.5	85.3	84.3	95.7	91.1	86.3
Phenanthrene d10	77.8	79.9	79.7	79.0	77.9	73.8	74.7	74.9	75.1	77.6	98.4	89.8	101	98.2	90.3
Aggregate Organics															
BOD	<2.0	<2.0	<2.0	2.20	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
COD	<20	59.0	<20	<20	<20	<20	21.0	25.0	29.0	49.0	<20	<20	<20	21.0	<20
Phenols (4AAP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds															
Benzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	<0.00050
Ethylbenzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	<0.00050
Methyl t-butyl ether (MTBE)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	<0.00050
Styrene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	<0.00050
Toluene	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	-	-	-	<0.00045
ortho-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	<0.00050
meta- & para-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	<0.00050
Xylene	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	-	-	-	<0.00075
4-Bromofluorobenzene (SS)	82.9	92.9	91.9	95.4	90.2	92.2	89.0	89.7	91.4	88.9	93.7	-	-	-	95.1
1,4-Difluorobenzene (SS)	92.2	93.5	94.2	89.5	92.5	93.8	94.3	93.7	94.9	95.1	104	-	-	-	102
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-	<0.10
VPH (C6-C10)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-	<0.10
3,4-Dichlorotoluene (SS)	91.7	102	77.7	98.4	86.3	103	99.7	96.2	101	90.2	59.1	-	-	-	95.4
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS05	WQS08	WQS08	WQS09	WQS10	WQS11	WQS12	WQS01	WQS02	WQS04	WQS03	WQS06	WQS05	WQS08	WQS08
Date	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	17-Aug-2017	16-Aug-2017	16-Aug-2017	17-Aug-2017	16-Aug-2017	16-Aug-2017	16-Aug-2017	16-Aug-2017
Time	12:42:00 PM	1:12:00 PM	-	2:38:00 PM	3:11:00 PM	-	3:57:00 PM	9:15:00 AM	12:00:00 PM	1:29:00 PM	8:44:00 AM	4:06:00 PM	2:54:00 PM	2:18:00 PM	-
QAQC	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate
ALS Sample ID	L1966679-5	L1966679-8	L1966679-12	L1966679-9	L1966679-10	L1966679-15	L1966679-11	L1977457-1	L1977457-2	L1977457-4	L1977457-3	L1977457-6	L1977457-5	L1977457-7	L1977457-12
<i>In Situ</i>															
Temperature (°C)	10.50	9.60	9.60	10.20	10.90	15.60	15.20	8.70	10.20	12.50	8.90	12.90	12.60	9.80	9.80
pH	7.54	7.42	7.42	7.16	7.15	7.69	7.32	8.05	7.71	7.95	7.92	7.66	7.75	7.36	7.36
Conductivity (µS/cm)	101	38.3	38.3	50.4	45.9	43.5	43.7	97.8	113	130	229	123	124	45.2	45.2
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	5.20	8.00	8.50	8.20	6.70	5.60	<5.0	<5.0	<5.0	<5.0	13.7	<5.0	<5.0	<5.0	11.4
Conductivity (µS/cm)	140	54.5	54.4	70.2	62.6	51.8	53.5	146	162	172	332	161	163	64.9	62.5
Hardness (as CaCO ₃)	61.6	25.6	24.2	32.1	27.8	22.9	23.8	71.8	77.6	88.2	174	76.5	80.4	31.5	29.3
pH	7.86	7.69	7.70	7.73	7.74	7.62	7.69	8.03	8.08	8.09	8.36	7.71	7.83	7.63	7.58
Total Suspended Solids	4.70	19.9	11.3	8.90	3.90	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	5.20	<3.0
Total Dissolved Solids	94.0	41.0	44.0	53.0	48.0	43.0	43.0	88.0	96.0	106	193	103	102	44.0	45.0
Turbidity (NTU)	3.33	14.5	15.0	13.8	13.3	3.91	4.50	0.830	0.690	0.870	0.450	2.75	2.01	7.95	7.32
Acidity (as CaCO ₃)	2.00	1.90	1.90	1.80	1.80	2.00	1.80	<1.0	<1.0	<1.0	<1.0	5.30	1.40	2.30	2.50
Alkalinity, Total (as CaCO ₃)	38.6	23.4	22.6	25.4	25.2	22.2	22.9	71.9	83.6	88.7	186	35.9	48.5	27.3	28.2
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0320	<0.020	<0.020	0.0220	0.0210	<0.020	<0.020	0.0270	0.0300	0.0310	0.0670	0.0310	0.0310	0.0200	0.0210
Sulphate (SO ₄)	29.8	4.36	4.34	8.94	6.34	3.90	4.06	2.54	2.88	3.63	2.27	39.9	30.6	4.78	4.62
Nutrients															
Total Nitrogen	0.0410	<0.030	0.0380	0.0300	<0.030	0.0460	0.0450	<0.030	<0.030	<0.030	0.107	0.0390	0.0350	<0.030	<0.030
Total Kjeldahl Nitrogen	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0247	<0.0050	<0.0050	<0.0050	<0.0050	0.0124	0.0128	<0.0050	<0.0050	<0.0050	0.0469	0.0301	0.0213	<0.0050	<0.0050
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00470	0.0241	0.0325	0.0205	0.0182	0.00480	0.00670	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.00260	0.00990	0.00930
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	0.00110	0.001000	<0.0010	0.00140	<0.0010	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	0.940	0.610	0.920	0.710	0.750	1.38	1.35	0.840	0.990	1.22	3.24	0.810	0.890	<0.50	0.510
Dissolved Organic Carbon	0.810	0.630	<0.50	<0.50	<0.50	1.16	1.000	0.800	0.910	1.27	3.03	0.730	0.760	<0.50	<0.50
Total Inorganic Carbon	8.94	5.57	5.59	6.11	5.88	5.15	5.40	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	9.60	6.12	5.87	6.61	6.45	5.58	5.60	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, Free	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Metals															
Aluminum (Al)	0.191	0.563	0.565	0.519	0.405	0.148	0.183	0.0362	0.0293	0.0375	0.0555	0.162	0.129	0.267	0.258
Antimony (Sb)	0.000130	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000240	0.000250	0.000210	<0.00010	0.000110	0.000140	<0.00010	<0.00010
Arsenic (As)	0.000270	0.000190	0.000210	0.000210	0.000260	0.000200	0.000210	0.000570	0.000520	0.000410	0.000790	0.000190	0.000250	0.000150	0.000140
Barium (Ba)	0.0453	0.0384	0.0379	0.0387	0.0338	0.0217	0.0224	0.0296	0.0335	0.0372	0.141	0.0616	0.0548	0.0390	0.0397
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0130	0.0160	0.0140	0.0190	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000322	0.0000224	0.0000247	0.0000255	0.0000193	<0.000050	0.0000063	<0.000050	<0.000050	<0.000050	0.0000058	0.0000222	0.0000174	0.0000220	0.0000210
Calcium (Ca)	19.0	8.03	8.23	10.5	9.13	7.91	8.08	22.2	26.1	25.3	35.7	22.4	22.2	9.76	9.87
Chromium (Cr)	0.000160	0.000290	0.000370	0.000270	0.000220	0.000170	0.000160	0.000350	0.000300	0.000260	<0.00010	0.000210	0.000200	0.000180	0.000150
Cobalt (Co)	0.000160	0.000270	0.000280	0.000260	0.000180	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000110	<0.00010	0.000120	0.000130
Copper (Cu)	0.00281	0.00170	0.00183	0.00191	0.00145	0.000910	0.00102	0.000680	0.000740	0.000860	0.000570	0.00196	0.00159	0.00110	0.00112
Iron (Fe)	0.187	0.584	0.608	0.555	0.421	0.154	0.187	<0.030	<0.030	<0.030	<0.030	0.188	0.139	0.381	0.368
Lead (Pb)	0.0000770	0.000824	0.000867	0.000706	0.000656	0.0000610	0.000115	<0.000050	<0.000050	<0.000050	<0.000050	0.0000890	0.0000520	0.000478	0.000490
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	3.10	1.26	1.30	1.60	1.30	0.921	0.958	3.67	4.13	4.73	19.4	3.63	4.01	1.31	1.32

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS05	WQS08	WQS08	WQS09	WQS10	WQS11	WQS12	WQS01	WQS02	WQS04	WQS03	WQS06	WQS05	WQS08	WQS08
Date	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	17-Aug-2017	16-Aug-2017	16-Aug-2017	17-Aug-2017	16-Aug-2017	16-Aug-2017	16-Aug-2017	16-Aug-2017
Time	12:42:00 PM	1:12:00 PM	-	2:38:00 PM	3:11:00 PM	-	3:57:00 PM	9:15:00 AM	12:00:00 PM	1:29:00 PM	8:44:00 AM	4:06:00 PM	2:54:00 PM	2:18:00 PM	-
QAQC	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate
ALS Sample ID	L1966679-5	L1966679-8	L1966679-12	L1966679-9	L1966679-10	L1966679-15	L1966679-11	L1977457-1	L1977457-2	L1977457-4	L1977457-3	L1977457-6	L1977457-5	L1977457-7	L1977457-12
Total Metals (cont'd)															
Manganese (Mn)	0.0103	0.0292	0.0305	0.0262	0.0214	0.0113	0.0116	0.00140	0.00229	0.00440	0.000970	0.00867	0.00790	0.0239	0.0243
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000533	0.000985	0.000638	0.000620	0.000616	0.000372	0.000407	0.000111	0.000155	0.000127	0.000423	0.000563	0.000421	0.000572	0.000570
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.326	0.300	0.294	0.310	0.254	0.269	0.265	0.149	0.191	0.250	0.455	0.433	0.392	0.284	0.287
Selenium (Se)	0.0000790	0.000101	0.0000670	0.0000630	<0.000050	<0.000050	<0.000050	0.0000670	<0.000050	<0.000050	<0.000050	0.0000840	0.0000760	0.000101	0.0000820
Silicon (Si)	2.86	2.25	2.25	2.44	2.10	1.82	1.92	2.90	3.03	3.44	3.16	2.97	3.13	2.17	2.17
Silver (Ag)	<0.000010	0.0000120	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	3.10	3.20	3.60	10.9	2.50	<2.0	<2.0	<2.0
Strontium (Sr)	0.0703	0.0443	0.0441	0.0491	0.0453	0.0333	0.0345	0.110	0.126	0.120	0.258	0.0763	0.0855	0.0506	0.0526
Sulphur (S)	-	-	-	-	-	-	-	0.830	1.05	1.37	0.790	13.9	10.7	1.60	1.67
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	0.0220	0.0200	<0.0190	<0.0190	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0100	<0.010
Uranium (U)	0.0000510	0.0000630	0.0000570	0.0000540	0.0000440	0.0000240	0.0000250	0.0000680	0.0000920	0.0000980	0.000175	0.0000330	0.0000500	0.0000450	0.0000460
Vanadium (V)	0.000620	0.00145	0.00135	0.00128	0.00101	0.000560	0.000630	0.00107	0.000990	0.000900	0.000580	0.000520	0.000620	0.000770	0.000740
Zinc (Zn)	0.00320	0.00380	0.00390	0.00330	<0.0030	<0.0030	<0.0030	<0.0030	0.00370	<0.0030	<0.0030	0.00610	<0.0030	0.00360	<0.0030
Dissolved Metals															
Aluminum (Al)	0.0243	0.0436	0.0420	0.0403	0.0423	0.0136	0.0161	0.00470	0.00550	0.00610	0.0234	0.0112	0.0115	0.0304	0.0303
Antimony (Sb)	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000240	0.000200	0.000180	<0.00010	<0.00010	0.0001	<0.00010	<0.00010
Arsenic (As)	0.000200	<0.00010	<0.00010	0.0001	<0.00010	0.000160	0.000110	0.000590	0.000420	0.000420	0.000850	0.000110	0.000180	<0.00010	<0.00010
Barium (Ba)	0.0451	0.0288	0.0279	0.0321	0.0297	0.0203	0.0211	0.0305	0.0330	0.0401	0.145	0.0646	0.0589	0.0362	0.0342
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0130	0.0140	0.0140	0.0190	<0.010	<0.010	<0.0100	<0.010
Cadmium (Cd)	0.0000296	0.0000062	<0.0000050	0.0000073	0.0000060	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000215	0.0000135	0.0000079	0.0000074
Calcium (Ca)	19.4	8.46	7.97	10.4	9.05	7.71	8.01	22.4	24.0	26.9	36.8	24.2	25.1	10.4	9.66
Chromium (Cr)	0.000150	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000260	0.000220	0.000200	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00166	<0.00050	<0.00050	0.000540	<0.00050	<0.00050	<0.00050	0.000900	0.00133	0.000670	0.000500	0.00108	0.000980	<0.00050	<0.00050
Iron (Fe)	<0.030	0.0330	0.0330	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.0440	0.0420
Lead (Pb)	<0.000050	0.0000610	0.0000550	<0.000050	0.0000500	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000510	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00160	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	3.17	1.09	1.04	1.48	1.26	0.886	0.936	3.84	4.30	5.07	19.9	3.89	4.28	1.36	1.26
Manganese (Mn)	0.00419	0.00181	0.000740	0.00132	0.00135	0.000620	0.000630	<0.00010	0.000160	0.000910	0.000220	0.00262	0.00262	0.0108	0.0103
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000508	0.000688	0.000658	0.000630	0.000600	0.000360	0.000398	0.0000660	0.000104	0.000135	0.000362	0.000561	0.000454	0.000612	0.000601
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.319	0.226	0.214	0.239	0.229	0.258	0.268	0.153	0.173	0.272	0.477	0.467	0.424	0.269	0.246
Selenium (Se)	0.0000660	<0.000050	<0.000050	0.0000580	0.0000520	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000770	0.0000530	0.0000840	0.0000920
Silicon (Si)	2.52	1.51	1.44	1.69	1.54	1.58	1.60	2.87	3.07	3.26	3.18	2.67	2.85	1.75	1.64
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	3.20	3.40	3.80	11.3	2.10	2.60	<2.0	<2.0
Strontium (Sr)	0.0709	0.0430	0.0415	0.0483	0.0444	0.0322	0.0332	0.110	0.114	0.117	0.257	0.0788	0.0900	0.0512	0.0489
Sulphur (S)	-	-	-	-	-	-	-	0.780	0.780	1.09	0.760	12.3	9.56	1.62	1.20
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000500	0.0000250	0.0000220	0.0000320	0.0000250	0.0000170	0.0000180	0.0000670	0.0000870	0.0000940	0.000171	0.0000330	0.0000460	0.0000340	0.0000310
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00101	0.000850	0.000820	0.000510	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acenaphthylene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Anthracene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS05	WQS08	WQS08	WQS09	WQS10	WQS11	WQS12	WQS01	WQS02	WQS04	WQS03	WQS06	WQS05	WQS08	WQS08
Date	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	17-Aug-2017	16-Aug-2017	16-Aug-2017	17-Aug-2017	16-Aug-2017	16-Aug-2017	16-Aug-2017	16-Aug-2017
Time	12:42:00 PM	1:12:00 PM	-	2:38:00 PM	3:11:00 PM	-	3:57:00 PM	9:15:00 AM	12:00:00 PM	1:29:00 PM	8:44:00 AM	4:06:00 PM	2:54:00 PM	2:18:00 PM	-
QAQC	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate
ALS Sample ID	L1966679-5	L1966679-8	L1966679-12	L1966679-9	L1966679-10	L1966679-15	L1966679-11	L1977457-1	L1977457-2	L1977457-4	L1977457-3	L1977457-6	L1977457-5	L1977457-7	L1977457-12
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Chrysene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Fluorene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Indeno[1,2,3-c,d]pyrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Pyrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	92.0	91.3	94.6	95.3	86.0	88.5	88.8	85.9	89.6	82.0	84.9	85.4	83.1	89.3	81.4
Chrysene d12	109	105	111	106	103	111	111	104	107	112	118	110	111	109	80.2
Naphthalene d8	91.6	87.1	91.4	93.7	85.2	90.0	90.7	96.8	97.5	104	107	101	101	100	90.3
Phenanthrene d10	95.6	92.6	97.7	99.0	89.5	93.5	93.6	88.1	93.0	96.1	98.5	91.9	93.5	92.5	91.4
Aggregate Organics															
BOD	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-	-	-	-	-	-	-	-
COD	<20	<20	<20	<20	<20	<20	<20	-	-	-	-	-	-	-	-
Phenols (4AAP)	-	-	-	-	-	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	0.00590	<0.0078	<0.0078	<0.0060	0.00590	<0.0071	<0.0073	<0.0054
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS09	WQS10	WQS11	WQS12	WQS01	WQS02	WQS04	WQS03	WQS06	WQS05	WQS08	WQS09	WQS09	WQS10	WQS11
Date	16-Aug-2017	17-Aug-2017	17-Aug-2017	17-Aug-2017	27-Sep-2017	26-Sep-2017	26-Sep-2017	27-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	27-Sep-2017
Time	3:24:00 PM	12:15:00 PM	10:00:00 AM	11:48:00 AM	10:40:00 AM	10:13:00 AM	11:34:00 AM	11:10:00 AM	2:16:00 PM	12:20:00 PM	12:45:00 PM	1:21:00 PM	-	2:48:00 PM	10:03:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular
ALS Sample ID	L1977457-8	L1977457-9	L1977457-10	L1977457-11	L1998999-1	L1998999-2	L1998999-4	L1998999-3	L1998999-6	L1998999-5	L1998999-7	L1998999-8	L1998999-15	L1998999-9	L1998999-10
<i>In Situ</i>															
Temperature (°C)	11.00	9.60	15.00	14.70	6.70	7.30	8.90	7.00	9.20	8.90	7.70	8.10	8.10	9.10	12.10
pH	7.81	7.10	7.82	7.52	8.00	7.89	7.98	8.12	7.83	7.97	7.97	7.74	7.74	7.79	7.83
Conductivity (µS/cm)	55.0	44.9	41.1	42.1	85.8	93.8	105	130	102	102	36.9	44.0	44.0	45.3	36.6
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	<5.0	11.3	<5.0	<5.0	8.20	11.7	13.1	41.9	7.80	9.50	29.2	23.0	22.9	25.4	6.10
Conductivity (µS/cm)	77.3	64.8	50.8	52.4	140	153	166	213	157	162	59.6	69.6	69.0	65.3	51.7
Hardness (as CaCO ₃)	36.4	30.2	23.1	23.9	66.5	74.8	80.1	111	65.8	74.5	26.4	32.1	30.0	31.4	22.8
pH	7.68	7.62	7.53	7.53	8.09	8.12	8.16	8.22	7.87	7.99	7.70	7.72	7.73	7.75	7.70
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	6.10	4.70	31.1	29.5	31.1	27.9	<3.0
Total Dissolved Solids	54.0	47.0	32.0	35.0	79.0	88.0	109	146	102	106	67.0	72.0	69.0	66.0	39.0
Turbidity (NTU)	7.48	8.23	2.68	2.28	1.20	1.02	1.57	0.850	3.36	3.01	65.5	59.9	56.4	51.4	1.90
Acidity (as CaCO ₃)	2.40	2.20	2.10	2.10	1.60	1.60	1.20	<1.0	1.80	1.80	1.80	1.80	1.80	1.70	1.70
Alkalinity, Total (as CaCO ₃)	30.5	26.6	22.1	22.2	74.1	81.0	87.2	120	40.6	54.2	26.8	28.8	29.1	28.8	22.8
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0200	<0.020	<0.020	<0.020	0.0360	0.0360	0.0360	0.0640	0.0360	0.0340	0.0270	0.0330	0.0340	0.0290	0.0250
Sulphate (SO ₄)	7.73	5.66	3.82	3.95	3.25	3.35	3.83	1.33	35.2	25.6	4.50	6.90	6.91	5.65	4.09
Nutrients															
Total Nitrogen	<0.030	<0.030	0.0420	0.0350	0.0400	0.0550	0.0600	0.212	0.0880	0.0830	0.0630	0.103	0.0610	0.0570	0.0650
Total Kjeldahl Nitrogen	<0.050	<0.050	0.0520	<0.050	<0.050	0.0550	0.0700	0.237	<0.050	0.0520	0.0520	0.0860	0.0930	0.0540	0.0840
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0313	<0.0050	<0.0050	<0.0050
Nitrate (as N)	<0.0050	<0.0050	0.0103	0.0122	<0.0050	<0.0050	<0.0050	<0.0050	0.0520	0.0379	0.0135	0.0153	0.0148	0.0106	<0.0050
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00830	0.0111	0.00470	0.00260	<0.0020	<0.0020	0.00220	0.00220	0.00470	0.00340	0.0654	0.0442	0.0281	0.0518	0.00430
Dissolved Orthophosphate (as P)	<0.0010	0.001000	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00250	0.00200	0.00190	0.00280	<0.0010
Carbon															
Total Organic Carbon	0.510	<0.50	0.820	0.840	1.78	2.67	2.94	9.91	1.78	2.06	1.56	1.06	1.30	0.980	1.12
Dissolved Organic Carbon	<0.50	<0.50	0.860	0.810	1.74	2.76	2.51	9.19	1.68	1.91	0.950	0.770	0.890	0.800	0.880
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.222	0.250	0.140	0.1000	0.0298	0.0403	0.0525	0.0515	0.161	0.113	2.31	2.70	2.57	2.10	0.0745
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	0.000200	0.000180	0.000170	<0.00010	<0.00010	0.000120	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000170	0.000150	0.000210	0.000170	0.000540	0.000460	<0.00050	0.000860	<0.00030	<0.00030	<0.00040	0.000340	<0.00040	<0.00040	<0.00020
Barium (Ba)	0.0410	0.0374	0.0216	0.0218	0.0313	0.0345	0.0376	0.0991	0.0659	0.0573	0.0767	0.0763	0.0802	0.0719	0.0218
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	0.0120	0.0140	0.0140	0.0170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000186	0.0000196	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000061	0.0000156	0.0000094	0.0000899	0.0000802	0.0000867	0.0000800	<0.0000050
Calcium (Ca)	11.3	9.51	7.85	8.08	20.3	22.0	23.9	22.1	21.0	22.6	9.30	11.5	10.8	9.84	7.90
Chromium (Cr)	0.000140	0.000130	0.000410	0.000140	0.000310	0.000520	0.000290	0.000200	0.000250	0.000250	0.00101	0.00105	0.00104	0.000900	<0.00010
Cobalt (Co)	0.000110	0.000120	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000120	<0.00010	0.00108	0.00104	0.00107	0.000970	<0.00010
Copper (Cu)	0.00115	0.00119	0.000860	0.000770	0.000910	0.00109	0.00133	0.00136	0.00246	0.00161	0.00641	0.00622	0.00589	0.00556	0.000760
Iron (Fe)	0.327	0.329	0.175	0.114	<0.030	<0.030	0.0520	0.0380	0.213	0.143	2.47	2.55	2.48	2.20	0.0800
Lead (Pb)	0.000411	0.000492	0.0000640	0.0000730	<0.000050	<0.000050	0.000380	<0.000050	0.000104	0.000141	0.00297	0.00269	0.00270	0.00256	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00180	<0.0010	<0.0010	0.001000	0.00160	0.00110	<0.0010	<0.0010
Magnesium (Mg)	1.56	1.35	0.795	0.829	3.82	4.46	4.96	13.4	3.97	4.23	2.11	2.39	2.53	2.15	0.880

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS09	WQS10	WQS11	WQS12	WQS01	WQS02	WQS04	WQS03	WQS06	WQS05	WQS08	WQS09	WQS09	WQS10	WQS11
Date	16-Aug-2017	17-Aug-2017	17-Aug-2017	17-Aug-2017	27-Sep-2017	26-Sep-2017	26-Sep-2017	27-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	27-Sep-2017
Time	3:24:00 PM	12:15:00 PM	10:00:00 AM	11:48:00 AM	10:40:00 AM	10:13:00 AM	11:34:00 AM	11:10:00 AM	2:16:00 PM	12:20:00 PM	12:45:00 PM	1:21:00 PM	-	2:48:00 PM	10:03:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular
ALS Sample ID	L1977457-8	L1977457-9	L1977457-10	L1977457-11	L1998999-1	L1998999-2	L1998999-4	L1998999-3	L1998999-6	L1998999-5	L1998999-7	L1998999-8	L1998999-15	L1998999-9	L1998999-10
Total Metals (cont'd)															
Manganese (Mn)	0.0208	0.0170	0.00934	0.00755	0.00122	0.00210	0.00550	0.000970	0.00822	0.00678	0.0949	0.0932	0.0917	0.0821	0.00484
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000025	<0.000025	<0.000025	<0.000025	<0.0000050
Molybdenum (Mo)	0.000559	0.000508	0.000417	0.000402	0.000189	0.000210	<0.00030	<0.00040	0.000554	<0.00050	0.000727	0.000716	0.000750	0.000733	<0.00050
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000890	0.000990	0.000950	0.000830	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.295	0.272	0.282	0.272	0.175	0.199	0.256	0.367	0.420	0.366	0.743	0.816	0.840	0.705	0.268
Selenium (Se)	0.0000800	0.0000880	<0.000050	<0.000050	0.0000520	<0.000050	<0.000050	0.0000700	0.000101	0.0000770	0.0000910	0.000108	0.0000950	0.0000820	<0.000050
Silicon (Si)	2.19	2.00	1.81	1.73	3.19	3.39	3.42	3.42	2.90	3.03	5.44	6.37	6.49	5.17	1.28
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.0000190	0.000111	0.0000200	0.0000220	<0.000010
Sodium (Na)	<2.0	<2.0	<2.0	<2.0	3.40	3.70	3.80	6.80	2.30	2.80	<2.0	<2.0	<2.0	<2.0	<0.000010
Strontium (Sr)	0.0549	0.0475	0.0328	0.0332	0.104	0.110	0.115	0.162	0.0768	0.0886	0.0528	0.0586	0.0571	0.0538	0.0334
Sulphur (S)	2.77	1.98	1.29	1.28	0.980	1.01	1.13	<0.50	11.6	8.56	1.30	2.33	2.12	1.82	1.24
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0750	0.0940	0.0650	0.0660	<0.010
Uranium (U)	0.0000450	0.0000370	0.0000230	0.0000230	0.0000870	0.0000980	0.000101	0.0000570	0.0000390	0.0000610	0.000106	0.0000980	0.000102	0.0000920	0.0000230
Vanadium (V)	0.000690	0.000710	0.000580	<0.00050	0.00105	0.000990	0.000860	0.000590	0.000530	0.000600	0.00437	0.00474	0.00460	0.00398	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0127	0.0141	0.0119	0.0113	<0.0030
Dissolved Metals															
Aluminum (Al)	0.0321	0.0399	0.0106	0.0120	0.00750	0.0116	0.00980	0.0415	0.0102	0.00880	0.0373	0.0160	0.0166	0.0395	0.0168
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	0.000180	0.000160	0.000150	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000110	0.0001	0.000140	0.000130	0.000520	0.000430	0.000400	0.000820	0.000130	0.000170	<0.00010	<0.00010	<0.00010	<0.00010	0.000110
Barium (Ba)	0.0383	0.0323	0.0204	0.0212	0.0318	0.0347	0.0383	0.1000	0.0616	0.0510	0.0296	0.0310	0.0325	0.0310	0.0211
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	0.0110	0.0130	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000085	0.0000080	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000073	0.0000121	0.0000062	0.0000099	0.0000079	0.0000078	0.0000082	<0.0000050
Calcium (Ca)	11.9	9.87	7.91	8.15	20.3	22.8	23.8	22.5	20.3	23.3	8.67	10.6	9.63	10.4	7.58
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	0.000210	0.000250	0.000230	0.000150	<0.00010	<0.00010	<0.00010	0.000140	<0.00010	<0.00010	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	<0.00050	<0.00050	<0.00050	<0.00050	0.000860	0.00102	0.00112	0.00135	0.00150	0.00122	0.000760	0.000700	0.000720	0.000770	0.000580
Iron (Fe)	0.0400	0.0370	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.0370	<0.030	<0.030	0.0350	<0.030
Lead (Pb)	<0.000050	0.0000520	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000630	<0.000050	<0.000050	0.0000740	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00190	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.64	1.34	0.823	0.872	3.87	4.36	5.01	13.4	3.67	3.96	1.16	1.35	1.46	1.35	0.939
Manganese (Mn)	0.00863	0.00413	0.000460	0.000340	0.000410	0.000990	0.00328	0.000620	0.00260	0.00272	0.00990	0.00785	0.00796	0.00735	0.00189
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000594	0.000578	0.000418	0.000442	<0.000050	<0.000050	0.0000610	0.000131	0.000430	0.000323	0.000572	0.000659	0.000534	0.000617	0.000305
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.287	0.248	0.270	0.272	0.185	0.203	0.276	0.386	0.420	0.356	0.354	0.321	0.351	0.351	0.297
Selenium (Se)	<0.000050	0.0000780	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000116	0.0000510	0.0000700	0.0000780	<0.000050	0.0000960	<0.000050
Silicon (Si)	1.83	1.54	1.47	1.49	3.20	3.54	3.62	3.48	2.72	2.98	1.85	1.81	1.88	1.94	1.21
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	<2.0	<2.0	<2.0	3.50	3.60	3.90	6.80	2.10	2.50	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0550	0.0472	0.0313	0.0331	0.0975	0.108	0.110	0.160	0.0701	0.0879	0.0431	0.0510	0.0446	0.0499	0.0298
Sulphur (S)	2.22	1.79	1.05	1.20	0.990	1.18	1.38	<0.50	11.5	8.50	1.59	2.09	1.92	1.53	1.07
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000360	0.0000250	0.0000150	0.0000160	0.0000720	0.0000910	0.0000910	0.0000530	0.0000340	0.0000520	0.0000310	0.0000360	0.0000310	0.0000390	0.0000180
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	0.000990	0.000870	0.000740	0.000500	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS09	WQS10	WQS11	WQS12	WQS01	WQS02	WQS04	WQS03	WQS06	WQS05	WQS08	WQS09	WQS09	WQS10	WQS11
Date	16-Aug-2017	17-Aug-2017	17-Aug-2017	17-Aug-2017	27-Sep-2017	26-Sep-2017	26-Sep-2017	27-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	27-Sep-2017
Time	3:24:00 PM	12:15:00 PM	10:00:00 AM	11:48:00 AM	10:40:00 AM	10:13:00 AM	11:34:00 AM	11:10:00 AM	2:16:00 PM	12:20:00 PM	12:45:00 PM	1:21:00 PM	-	2:48:00 PM	10:03:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular
ALS Sample ID	L1977457-8	L1977457-9	L1977457-10	L1977457-11	L1998999-1	L1998999-2	L1998999-4	L1998999-3	L1998999-6	L1998999-5	L1998999-7	L1998999-8	L1998999-15	L1998999-9	L1998999-10
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	82.6	79.6	107	103	90.3	84.5	105	88.6	86.9	92.2	92.2	83.3	93.7	92.2	91.3
Chrysene d12	116	62.8	72.7	74.9	101	95.8	119	109	102	105	108	97.6	105	96.7	112
Naphthalene d8	103	75.7	103	103	89.0	86.0	108	93.0	85.6	83.7	88.7	84.7	89.4	85.3	88.7
Phenanthrene d10	97.3	86.4	109	113	95.6	91.1	111	97.0	92.6	94.6	98.5	91.4	94.6	91.9	97.2
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00250	0.00110	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	0.0120	<0.0071	<0.0063	<0.0055	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11	WQS12	WQS01	WQS02	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS11	WQS12
Date	27-Sep-2017	26-Sep-2017	16-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	16-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	16-Oct-2017	18-Oct-2017
Time	-	3:35:00 PM	10:20:00 AM	12:35:00 PM	-	1:30:00 PM	2:00:00 PM	3:25:00 PM	1:45:00 PM	-	2:15:00 PM	2:50:00 PM	4:50:00 PM	10:53:00 AM	5:15:00 PM
QAQC	Duplicate	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L1998999-12	L1998999-11	L2008179-1	L2010562-5	L2010562-3	L2010562-6	L2008179-2	L2010562-8	L2010562-9	L2010562-4	L2010562-10	L2010562-7	L2010562-11	L2008179-3	L2010562-12
<i>In Situ</i>															
Temperature (°C)	12.10	12.70	1.70	2.40	2.40	2.80	1.40	4.30	3.50	3.50	3.50	3.70	4.10	6.60	6.20
pH	7.83	7.74	7.88	5.91	5.91	6.98	8.22	7.51	7.28	7.28	7.37	7.39	7.53	8.44	7.62
Conductivity (µS/cm)	36.6	40.2	79.6	84.2	84.2	92.6	109	105	99.5	99.5	47.9	53.9	53.0	36.8	38.6
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	5.90	8.80	12.3	25.3	14.3	22.6	38.3	6.50	13.9	20.9	22.4	19.8	18.1	<5.0	6.70
Conductivity (µS/cm)	52.1	55.8	141	144	162	167	199	171	165	77.5	79.7	90.5	85.9	57.9	61.2
Hardness (as CaCO ₃)	25.0	26.2	68.2	69.5	78.1	76.3	93.3	76.4	75.8	36.2	36.8	42.1	39.9	24.4	26.8
pH	7.68	7.70	8.09	8.08	7.85	8.14	8.23	7.88	8.04	7.77	7.84	7.87	7.88	7.68	7.73
Total Suspended Solids	<3.0	6.10	26.5	4.30	3.10	5.10	4.30	7.90	6.90	3.50	<3.0	4.50	3.90	3.50	6.10
Total Dissolved Solids	37.0	43.0	71.0	95.0	105	103	101	109	108	55.0	60.0	66.0	66.0	23.0	44.0
Turbidity (NTU)	1.98	8.06	32.4	6.67	5.67	7.61	2.89	5.76	5.83	3.50	3.89	3.80	3.51	1.60	3.18
Acidity (as CaCO ₃)	1.70	1.70	1.10	1.70	1.50	1.40	<1.0	2.10	1.80	1.40	1.90	2.00	1.90	2.00	1.80
Alkalinity, Total (as CaCO ₃)	23.1	24.7	75.9	78.2	61.4	83.4	113	48.4	62.8	37.2	37.6	40.6	40.1	25.8	28.3
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0300	0.0250	0.0370	0.0300	0.0320	0.0330	0.0660	0.0310	0.0320	0.0270	0.0270	0.0280	0.0290	0.0230	0.0200
Sulphate (SO ₄)	4.10	4.41	3.26	2.69	23.3	3.85	1.16	36.2	23.5	4.78	4.79	7.05	6.06	3.86	3.91
Nutrients															
Total Nitrogen	0.0700	0.0480	0.0870	0.129	0.101	0.111	0.204	0.0990	0.0980	0.0990	0.0910	0.0900	0.0840	0.0480	0.0690
Total Kjeldahl Nitrogen	0.0640	0.0510	0.0880	0.124	0.0620	0.111	0.218	<0.050	0.0650	0.0640	0.0770	0.0670	0.0960	<0.050	0.0550
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	<0.0050	0.00610	<0.0050	<0.0050	0.0266	<0.0050	<0.0050	0.0464	0.0266	0.00820	0.00850	0.00770	<0.0050	<0.0050	0.00810
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00450	0.00970	0.0257	0.00520	0.00520	0.00670	0.00440	0.00590	0.00510	0.00560	0.00600	0.00540	0.00460	0.00280	0.00470
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	1.23	1.17	3.63	6.05	3.77	5.69	8.72	2.37	3.74	3.86	4.06	3.73	3.86	1.11	2.01
Dissolved Organic Carbon	0.990	0.930	3.22	5.51	3.37	4.99	8.22	2.13	3.19	3.55	3.70	3.45	3.75	1.16	2.49
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0814	0.247	1.24	0.270	0.231	0.307	0.147	0.263	0.234	0.140	0.146	0.153	0.108	0.0581	0.132
Antimony (Sb)	<0.00010	<0.00010	0.000140	0.000160	0.000140	0.000140	<0.00010	0.000110	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	<0.00020	<0.00020	0.000860	0.000530	0.000340	0.000500	0.000900	0.000290	0.000340	0.000230	0.000230	0.000240	0.000220	0.000160	0.000210
Barium (Ba)	0.0225	0.0295	0.0616	0.0332	0.0535	0.0353	0.122	0.0693	0.0541	0.0358	0.0365	0.0379	0.0370	0.0335	0.0242
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	0.0130	0.0130	<0.010	0.0130	0.0130	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.000050	0.0000150	0.0000115	<0.000050	0.0000070	0.0000052	0.0000053	0.0000125	0.0000083	0.0000121	0.0000102	0.0000130	0.0000104	<0.000050	0.0000052
Calcium (Ca)	7.75	8.28	21.4	21.6	23.2	23.2	19.9	24.2	23.8	11.9	11.9	13.4	13.1	7.97	9.29
Chromium (Cr)	0.000170	0.000180	0.00138	0.000580	0.000390	0.000580	0.000290	0.000320	0.000380	0.000190	0.000200	0.000220	0.000160	<0.00010	0.000160
Cobalt (Co)	<0.00010	0.000130	0.000700	0.000150	0.000160	0.000230	<0.00010	0.000170	0.000160	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000800	0.00141	0.00310	0.00211	0.00181	0.00218	0.00151	0.00183	0.00180	0.00135	0.00137	0.00139	0.00134	0.000670	0.001000
Iron (Fe)	0.0930	0.277	1.19	0.254	0.266	0.332	0.137	0.308	0.269	0.317	0.324	0.308	0.261	0.0720	0.182
Lead (Pb)	0.0000530	0.000413	0.000283	0.0000590	0.0000640	0.0000750	<0.000050	0.0000960	0.0000710	0.000144	0.000152	0.000142	0.000132	<0.000050	0.0000900
Lithium (Li)	<0.0010	<0.0010	0.00110	<0.0010	<0.0010	<0.0010	0.00160	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	0.885	1.09	4.25	3.87	4.26	4.31	12.5	4.15	4.18	1.81	1.80	2.12	2.06	1.05	1.22

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11	WQS12	WQS01	WQS02	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS11	WQS12
Date	27-Sep-2017	26-Sep-2017	16-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	16-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	16-Oct-2017	18-Oct-2017
Time	-	3:35:00 PM	10:20:00 AM	12:35:00 PM	-	1:30:00 PM	2:00:00 PM	3:25:00 PM	1:45:00 PM	-	2:15:00 PM	2:50:00 PM	4:50:00 PM	10:53:00 AM	5:15:00 PM
QAQC	Duplicate	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L1998999-12	L1998999-11	L2008179-1	L2010562-5	L2010562-3	L2010562-6	L2008179-2	L2010562-8	L2010562-9	L2010562-4	L2010562-10	L2010562-7	L2010562-11	L2008179-3	L2010562-12
Total Metals (cont'd)															
Manganese (Mn)	0.00558	0.0145	0.0363	0.00770	0.0112	0.0144	0.00262	0.0120	0.0117	0.0203	0.0209	0.0185	0.0154	0.00604	0.0117
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	<0.00050	<0.00050	0.000253	0.000107	0.000305	0.000127	0.000300	0.000408	0.000304	0.000542	0.000542	0.000540	0.000519	0.000460	0.000390
Nickel (Ni)	<0.00050	<0.00050	0.00144	<0.00050	<0.00050	0.000530	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.276	0.319	0.369	0.248	0.410	0.302	0.324	0.442	0.371	0.360	0.336	0.362	0.335	0.284	0.314
Selenium (Se)	<0.000050	<0.000050	0.0000580	<0.000050	0.0000580	<0.000050	<0.000050	0.0000760	0.0000680	0.0000820	0.0000830	0.0000820	0.0000680	<0.000050	<0.000050
Silicon (Si)	1.30	1.83	5.56	3.93	3.47	3.94	3.38	3.11	3.41	3.10	3.27	3.19	3.13	1.52	2.23
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	<2.0	3.60	3.40	3.00	3.50	6.40	2.50	2.90	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0323	0.0365	0.104	0.103	0.0947	0.109	0.144	0.0866	0.0947	0.0607	0.0632	0.0660	0.0656	0.0338	0.0411
Sulphur (S)	1.18	1.45	1.04	1.06	8.48	1.36	0.510	12.8	8.16	1.72	1.73	2.41	2.20	1.25	1.38
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	0.0300	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000230	0.0000320	0.000123	0.000115	0.0000780	0.000109	0.0000550	0.0000490	0.0000740	0.0000540	0.0000540	0.0000540	0.0000540	0.0000230	0.0000360
Vanadium (V)	<0.00050	0.000650	0.00327	0.00133	0.000860	0.00128	0.000750	0.000750	0.000860	0.000740	0.000690	0.000700	0.000610	<0.00050	0.000530
Zinc (Zn)	<0.0030	<0.0030	0.00670	<0.0030	<0.0030	<0.0030	0.00330	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.00340	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.0180	0.0190	0.0105	0.0250	0.0130	0.0225	0.0291	0.00610	0.0127	0.0234	0.0239	0.0210	0.0196	0.00300	0.00690
Antimony (Sb)	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000120	0.0001	0.000440	0.000360	0.000210	0.000330	0.000770	0.000140	0.000200	0.000160	0.000160	0.000140	0.000150	0.000110	0.000130
Barium (Ba)	0.0209	0.0234	0.0443	0.0309	0.0513	0.0331	0.119	0.0651	0.0501	0.0341	0.0343	0.0370	0.0353	0.0320	0.0218
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	0.0120	0.0130	<0.010	0.0120	0.0110	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000060	<0.0000050	<0.0000050	0.0000081	0.0000060	0.0000066	0.0000063	0.0000062	0.0000054	<0.0000050	<0.0000050
Calcium (Ca)	8.45	8.80	21.0	21.7	24.5	23.5	17.4	23.8	23.5	11.6	11.7	13.5	12.7	8.13	8.80
Chromium (Cr)	<0.00010	<0.00010	0.000220	0.000290	0.000210	0.000240	0.000150	<0.00010	0.000120	<0.00010	<0.00010	0.0001	0.0001	<0.00010	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000600	0.000600	0.00129	0.00146	0.00124	0.00153	0.00121	0.00107	0.00128	0.000960	0.000960	0.000980	0.00102	<0.00050	0.000520
Iron (Fe)	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.0310	<0.030	<0.030	0.112	0.122	0.101	0.0930	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	0.946	1.04	3.85	3.73	4.10	4.31	12.1	4.13	4.18	1.75	1.82	2.03	1.97	1.01	1.17
Manganese (Mn)	0.00191	0.00315	0.00450	0.00119	0.00376	0.00448	0.000660	0.00402	0.00366	0.00958	0.00998	0.00893	0.00661	0.000180	0.000290
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.00010	<0.0000050	<0.0000050	<0.0000050				

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11	WQS12	WQS01	WQS02	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS11	WQS12
Date	27-Sep-2017	26-Sep-2017	16-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	16-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	18-Oct-2017	16-Oct-2017	18-Oct-2017
Time	-	3:35:00 PM	10:20:00 AM	12:35:00 PM	-	1:30:00 PM	2:00:00 PM	3:25:00 PM	1:45:00 PM	-	2:15:00 PM	2:50:00 PM	4:50:00 PM	10:53:00 AM	5:15:00 PM
QAQC	Duplicate	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L1998999-12	L1998999-11	L2008179-1	L2010562-5	L2010562-3	L2010562-6	L2008179-2	L2010562-8	L2010562-9	L2010562-4	L2010562-10	L2010562-7	L2010562-11	L2008179-3	L2010562-12
Polycyclic Aromatic Hydrocarbons <i>(cont'd)</i>															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	94.7	92.4	66.9	87.3	81.6	89.7	72.9	77.4	88.6	80.9	87.0	89.5	92.4	76.0	97.5
Chrysene d12	115	103	55.0	100.0	102	103	61.4	95.3	97.3	103	107	123	104	63.3	114
Naphthalene d8	90.1	87.6	70.8	81.0	77.3	82.0	73.3	83.2	88.5	83.0	91.6	86.4	92.6	76.4	91.1
Phenanthrene d10	96.6	95.8	75.8	96.5	94.7	102	77.7	89.1	96.0	98.1	97.4	102	105	81.6	110
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS02	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS11-US	WQS11	WQS12	WQS01
Date	28-Nov-2017	28-Nov-2017	28-Nov-2017	21-Nov-2017	28-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	28-Nov-2017	21-Nov-2017	14-Dec-2017
Time	9:45:00 AM	-	11:00:00 AM	11:30:00 AM	-	1:30:00 PM	10:50:00 AM	-	10:13:00 AM	12:30:00 PM	2:20:00 PM	4:30:00 PM	2:30:00 PM	5:00:00 PM	10:30:00 AM
QAQC	Regular	Duplicate	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2029323-1	L2029323-4	L2029323-2	L2027227-1	L2029323-6	L2027227-3	L2027227-2	L2027227-8	L2027227-4	L2027227-5	L2027227-6	L2027227-10	L2029323-3	L2027227-7	L2036162-1
<i>In Situ</i>															
Temperature (°C)	0.50	0.50	0.50	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	1.30	2.00	1.30	0.60
pH	7.57	7.57	7.57	7.09	7.81	7.56	6.66	6.66	6.07	7.51	7.56	7.41	7.92	7.47	8.20
Conductivity (µS/cm)	76.8	78.3	78.3	21.5	79.8	79.2	79.2	79.2	50.3	54.4	54.7	34.9	36.1	36.3	83.9
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	15.8	20.7	21.0	26.6	59.9	21.3	23.0	23.2	12.2	13.3	12.1	11.5	12.8	10.5	11.7
Conductivity (µS/cm)	140	142	143	141	139	145	147	149	88.5	97.3	99.1	59.4	62.8	63.3	156
Hardness (as CaCO ₃)	66.4	72.5	68.9	72.6	76.3	72.2	74.1	74.4	40.1	46.4	47.3	27.5	27.6	29.4	76.0
pH	8.16	8.14	8.16	8.02	8.08	7.84	7.93	7.96	7.84	7.85	7.89	7.63	7.79	7.69	8.12
Total Suspended Solids	4.50	3.70	<3.0	<3.0	<3.0	7.30	<3.0	4.70	<3.0	<3.0	5.10	3.90	3.30	4.10	<3.0
Total Dissolved Solids	90.0	98.0	88.0	101	111	114	106	107	65.0	73.0	74.0	51.0	48.0	51.0	99.0
Turbidity (NTU)	4.21	3.36	2.56	5.35	3.36	8.95	4.59	4.98	1.84	2.21	3.42	6.01	5.44	5.84	1.58
Acidity (as CaCO ₃)	1.000	<1.0	<1.0	1.40	<1.0	2.40	2.20	2.10	2.00	2.00	2.00	2.10	1.80	2.00	1.60
Alkalinity, Total (as CaCO ₃)	78.3	79.6	79.8	79.0	80.0	53.7	60.8	61.9	42.6	46.2	46.6	27.8	28.7	28.9	83.3
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0270	0.0280	0.0290	0.0380	0.0350	0.0390	0.0390	0.0390	0.0300	0.0320	0.0320	0.0270	0.0210	0.0250	0.0340
Sulphate (SO ₄)	1.69	1.78	1.80	2.84	0.660	23.3	17.3	17.3	4.90	6.27	6.28	4.21	4.11	4.48	2.00
Nutrients															
Total Nitrogen	0.1000	0.120	0.119	0.149	0.249	0.156	0.157	0.159	0.0910	0.105	0.116	0.111	0.116	0.112	0.0990
Total Kjeldahl Nitrogen	0.0950	0.0950	0.101	0.150	0.241	0.132	0.134	0.123	0.0770	0.0870	0.0830	0.0760	0.0780	0.0730	0.0630
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0195	0.0170	0.0174	0.0112	0.00780	0.0396	0.0309	0.0298	0.0399	0.0397	0.0397	0.0382	0.0356	0.0408	0.0228
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00620	0.00390	0.00350	0.00540	0.00420	0.00840	0.00450	0.00400	0.00230	0.00320	0.00700	0.00770	0.00830	0.00800	0.00480
Dissolved Orthophosphate (as P)	0.001000	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00140	0.001000	0.001000
Carbon															
Total Organic Carbon	4.55	5.51	5.78	6.48	13.1	5.54	5.83	6.13	2.91	3.42	3.29	3.49	3.88	3.18	3.46
Dissolved Organic Carbon	4.62	5.29	5.48	5.94	12.4	5.37	5.82	5.89	2.80	2.88	2.93	3.00	3.70	2.77	3.37
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.196	0.184	0.125	0.244	0.194	0.400	0.207	0.273	0.0668	0.0918	0.174	0.289	0.275	0.257	0.0959
Antimony (Sb)	0.0001	<0.00010	0.0001	0.000120	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000110
Arsenic (As)	0.000500	0.000480	0.000460	0.000470	0.000710	0.000350	0.000340	0.000340	0.000230	0.000250	0.000300	0.000300	0.000280	0.000290	0.000510
Barium (Ba)	0.0303	0.0305	0.0307	0.0316	0.0613	0.0558	0.0474	0.0491	0.0337	0.0349	0.0369	0.0245	0.0220	0.0231	0.0370
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0140	0.0140	0.0150	0.0120	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0160
Cadmium (Cd)	<0.000050	<0.000050	<0.000050	<0.000050	0.0000084	0.0000080	0.0000061	0.0000063	0.0000099	0.0000100	0.0000092	0.0000092	0.0000078	0.0000088	<0.000050
Calcium (Ca)	21.7	21.9	22.9	23.8	15.8	22.6	23.1	15.8	14.7	16.4	16.6	9.85	9.06	10.4	25.4
Chromium (Cr)	0.000480	0.000510	0.000450	0.000600	0.000370	0.000510	0.000390	0.000430	0.000170	0.000230	0.000280	0.000320	0.000330	0.000280	0.000430
Cobalt (Co)	0.000110	<0.00010	<0.00010	0.000150	<0.00010	0.000240	0.000130	0.000130	<0.00010	<0.00010	0.000110	0.000150	0.000140	0.000140	<0.00010
Copper (Cu)	0.00161	0.00203	0.00201	0.00290	0.00193	0.00301	0.00276	0.00271	0.00103	0.00122	0.00142	0.00137	0.00131	0.00134	0.00137
Iron (Fe)	0.146	0.136	0.0960	0.263	0.151	0.488	0.255	0.262	0.261	0.257	0.335	0.339	0.330	0.315	0.0790
Lead (Pb)	<0.000050	<0.000050	<0.000050	0.0000650	<0.000050	0.000148	0.0000720	0.0000710	0.0000680	0.0000680	0.000103	0.000153	0.000125	0.000146	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	0.00140	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	3.85	3.91	4.02	4.94	8.56	4.81	4.90	4.92	2.33	2.81	2.87	1.50	1.42	1.51	4.56

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS02	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS11-US	WQS11	WQS12	WQS01
Date	28-Nov-2017	28-Nov-2017	28-Nov-2017	21-Nov-2017	28-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	28-Nov-2017	21-Nov-2017	14-Dec-2017
Time	9:45:00 AM	-	11:00:00 AM	11:30:00 AM	-	1:30:00 PM	10:50:00 AM	-	10:13:00 AM	12:30:00 PM	2:20:00 PM	4:30:00 PM	2:30:00 PM	5:00:00 PM	10:30:00 AM
QAQC	Regular	Duplicate	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2029323-1	L2029323-4	L2029323-2	L2027227-1	L2029323-6	L2027227-3	L2027227-2	L2027227-8	L2027227-4	L2027227-5	L2027227-6	L2027227-10	L2029323-3	L2027227-7	L2036162-1
Total Metals (cont'd)															
Manganese (Mn)	0.00560	0.00674	0.00423	0.00841	0.00273	0.0146	0.00770	0.00797	0.0243	0.0219	0.0214	0.0178	0.0187	0.0197	0.00289
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000109	0.000102	0.0000990	0.000117	0.000142	0.000429	0.000332	0.000335	0.000464	0.000474	0.000469	0.000347	0.000361	0.000373	0.000118
Nickel (Ni)	<0.00050	<0.00050	<0.00050	0.000500	<0.00050	0.000850	0.000560	0.000550	<0.00050	<0.00050	0.00159	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.176	0.182	0.183	0.242	0.253	0.450	0.366	0.373	0.251	0.270	0.290	0.339	0.351	0.332	0.176
Selenium (Se)	0.0000940	0.0000730	<0.000050	0.0000620	<0.000050	0.000127	0.0000930	0.0000900	0.0000750	0.0000840	0.0000920	<0.000050	0.0000550	<0.000050	0.0000660
Silicon (Si)	3.77	3.76	3.72	4.06	3.30	3.38	3.33	3.58	3.63	3.69	3.87	2.82	2.76	2.78	4.15
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	3.00	2.90	3.00	3.30	3.70	2.60	2.80	2.80	<2.0	<2.0	2.00	<2.0	<2.0	<2.0	3.60
Strontium (Sr)	0.102	0.0963	0.0986	0.0989	0.103	0.0769	0.0843	0.0839	0.0651	0.0709	0.0702	0.0404	0.0419	0.0431	0.122
Sulphur (S)	<0.50	0.530	0.570	1.04	<0.50	7.80	5.70	5.95	1.71	2.13	2.16	1.44	1.37	1.47	0.760
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000115	0.000113	0.000114	0.0000990	0.0000360	0.0000590	0.0000730	0.0000720	0.0000480	0.0000490	0.0000540	0.0000350	0.0000360	0.0000340	0.000142
Vanadium (V)	0.00115	0.00102	0.000930	0.00110	0.000700	0.00110	0.000820	0.000870	0.000580	0.000640	0.000800	0.000860	0.000830	0.000830	0.000990
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	0.00320	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.0241	0.0291	0.0284	0.0342	0.112	0.0256	0.0284	0.0276	0.0227	0.0235	0.0225	0.0289	0.0302	0.0258	0.0189
Antimony (Sb)	<0.00010	<0.00010	0.0001	0.000120	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000420	0.000390	0.000380	0.000380	0.000620	0.000210	0.000250	0.000230	0.000190	0.000200	0.000190	0.000180	0.000170	0.000160	0.000420
Barium (Ba)	0.0311	0.0328	0.0309	0.0295	0.0685	0.0531	0.0465	0.0471	0.0316	0.0346	0.0339	0.0203	0.0212	0.0204	0.0351
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0120	0.0120	0.0120	0.0110	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0130
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000056	0.0000062	0.0000061	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	20.5	22.0	21.0	21.3	16.4	21.2	22.3	22.3	12.4	14.3	14.7	8.62	8.78	9.24	23.2
Chromium (Cr)	0.000220	0.000230	0.000290	0.000310	0.000250	0.000110	0.000180	0.000150	<0.00010	0.000110	0.000110	<0.00010	<0.00010	<0.00010	0.000250
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00110	0.00160	0.00154	0.00246	0.00167	0.00238	0.00232	0.00229	0.000820	0.000990	0.00101	0.000800	0.000740	0.000780	0.00121
Iron (Fe)	<0.030	<0.030	<0.030	0.0400	0.0910	0.0340	0.0370	0.0370	0.118	0.109	0.1000	0.0450	0.0550	0.0450	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	3.67	4.29	4.01	4.74	8.57	4.69	4.49	4.52	2.24	2.60	2.59	1.44	1.37	1.53	4.42
Manganese (Mn)	0.000450	0.000680	0.000700	0.000930	0.00119	0.00337	0.00237	0.00213	0.0206	0.0169	0.0120	0.00355	0.00525	0.00338	<0.00015
Mercury (Hg)	0.0000082	0.0000069	0.0000063	<0.0000050	0.0000071	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.0000950	0.000101	0.000103	0.000130	0.000112	0.000475	0.000369	0.000393	0.000494	0.000500	0.000523	0.000364	0.000364	0.000398	0.0000920
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.148	0.185	0.173	0.234	0.267	0.444	0.373	0.362	0.257	0.274	0.287	0.314	0.319	0.327	0.174
Selenium (Se)	0.0000530	0.0000680	0.0000990	0.0000690	0.0000530	0.000123	0.0000930	0.0000660	0.0000860	0.0000800	0.0000690	<0.000050	0.0000720	<0.000050	0.0000600
Silicon (Si)	3.50	3.63	3.51	3.72	3.31	2.83	3.03	3.08	3.43	3.48	3.48	2.35	2.45	2.37	3.33
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	3.20	3.50	3.30	3.30	4.30	2.70	2.90	2.80	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	3.70
Strontium (Sr)	0.102	0.102	0.102	0.104	0.111	0.0837	0.0918	0.0885	0.0695	0.0740	0.0762	0.0448	0.0421	0.0450	0.118
Sulphur (S)	<0.50	<0.50	0.580	1.15	<0.50	7.60	5.48	5.57	1.72	2.04	1.96	1.40	1.26	1.36	<0.50
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000170
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000108	0.000113	0.000111	0.000105	0.0000350	0.0000620	0.0000740	0.0000720	0.0000460	0.0000540	0.0000550	0.0000270	0.0000290	0.0000280	0.000157
Vanadium (V)	0.000720	0.000730	0.000740	0.000640	0.000560	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000770
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.00320
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS02	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS11-US	WQS11	WQS12	WQS01
Date	28-Nov-2017	28-Nov-2017	28-Nov-2017	21-Nov-2017	28-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	21-Nov-2017	28-Nov-2017	21-Nov-2017	14-Dec-2017
Time	9:45:00 AM	-	11:00:00 AM	11:30:00 AM	-	1:30:00 PM	10:50:00 AM	-	10:13:00 AM	12:30:00 PM	2:20:00 PM	4:30:00 PM	2:30:00 PM	5:00:00 PM	10:30:00 AM
QAQC	Regular	Duplicate	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2029323-1	L2029323-4	L2029323-2	L2027227-1	L2029323-6	L2027227-3	L2027227-2	L2027227-8	L2027227-4	L2027227-5	L2027227-6	L2027227-10	L2029323-3	L2027227-7	L2036162-1
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	76.4	78.7	81.5	84.6	74.2	92.2	95.3	81.0	116	84.6	75.7	76.1	83.0	87.8	101
Chrysene d12	106	105	109	121	102	130	126	117	111	121	117	110	103	124	104
Naphthalene d8	93.5	96.5	102	94.7	95.3	104	107	95.9	129	101	96.9	92.8	94.9	103	104
Phenanthrene d10	94.7	96.6	102	88.0	92.5	94.2	98.3	85.8	116	89.5	87.7	81.2	96.0	91.8	116
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds															
Benzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-
Ethylbenzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-
Methyl t-butyl ether (MTBE)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-
Styrene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-
Toluene	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	-
ortho-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-
meta- & para-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-
Xylene	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	-
4-Bromofluorobenzene (SS)	96.4	96.3	97.6	75.4	97.9	72.7	72.2	70.7	71.1	72.5	70.8	67.2	96.5	70.5	-
1,4-Difluorobenzene (SS)	98.4	104	102	94.9	107	92.1	103	98.3	93.6	101	100	99.5	102	93.1	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS02	WQS04B	WQS03	WQS06	WQS06	WQS05	WQS08	WQS09	WQS10	WQS11-US	WQS11	WQS12	WQS01	WQS02
Date	14-Dec-2017	14-Dec-2017	12-Dec-2017	14-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	14-Dec-2017	12-Dec-2017	18-Jan-2018	17-Jan-2018
Time	-	1:30:00 PM	2:00:00 PM	9:30:00 AM	1:00:00 PM	-	1:45:00 PM	3:00:00 PM	12:00:00 PM	11:00:00 AM	10:00:00 AM	2:15:00 PM	3:45:00 PM	11:20:00 AM	10:30:00 AM
QAQC	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2036162-14	L2036162-2	L2036162-4	L2036162-3	L2036162-6	L2036162-13	L2036162-5	L2036162-7	L2036162-8	L2036162-9	L2036162-11	L2036162-10	L2036162-12	L2047188-4	L2047188-1
<i>In Situ</i>															
Temperature (°C)	0.60	0.30	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.20	0.60	1.80	1.30	0.00	0.00
pH	8.20	8.17	7.49	8.68	7.48	7.48	7.55	7.57	7.48	7.68	7.68	7.99	7.52	8.72	8.36
Conductivity (µS/cm)	83.9	84.7	87.9	89.6	89.0	89.0	89.0	54.7	58.8	64.1	36.3	39.2	41.6	210	224
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	11.6	16.2	20.8	46.3	14.9	14.6	16.2	11.8	12.4	11.0	12.4	11.1	10.9	6.20	7.30
Conductivity (µS/cm)	157	160	161	182	167	168	167	105	114	117	69.4	68.7	76.1	168	176
Hardness (as CaCO ₃)	89.9	77.2	81.5	90.0	75.8	95.5	78.7	48.6	52.7	54.7	35.3	31.5	38.5	82.6	86.6
pH	8.12	8.11	8.03	8.14	7.95	7.95	7.99	7.94	7.94	7.92	7.75	7.77	7.78	8.14	8.13
Total Suspended Solids	<3.0	<3.0	19.9	<3.0	3.30	3.70	6.70	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	97.0	99.0	108	113	111	109	113	69.0	79.0	75.0	56.0	53.0	51.0	115	102
Turbidity (NTU)	1.75	1.65	17.8	2.19	6.74	6.75	8.39	1.52	1.58	2.22	3.38	3.43	3.37	1.66	0.940
Acidity (as CaCO ₃)	1.60	1.30	2.10	1.50	2.10	2.00	2.00	1.80	1.90	2.10	2.00	1.90	1.90	<1.0	1.000
Alkalinity, Total (as CaCO ₃)	84.6	86.3	89.3	99.5	60.8	60.4	67.1	48.8	52.1	54.4	31.6	31.0	34.3	90.1	94.6
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.730	<0.50	<0.50
Fluoride (F)	0.0330	0.0360	0.0370	0.0470	0.0380	0.0390	0.0390	0.0350	0.0350	0.0370	0.0260	0.0260	0.0270	0.0340	0.0360
Sulphate (SO ₄)	2.02	2.18	3.39	0.990	25.4	25.5	19.8	5.35	6.77	6.76	4.26	4.34	4.71	2.41	2.75
Nutrients															
Total Nitrogen	0.0860	0.102	0.130	0.204	0.139	0.130	0.128	0.0910	0.0860	0.0970	0.113	0.0990	0.110	0.0710	0.0800
Total Kjeldahl Nitrogen	0.0770	0.0910	0.117	0.207	0.116	0.142	0.124	0.0660	0.0620	<0.050	0.0990	0.0720	0.0800	0.0610	0.0630
Ammonia as N	<0.0050	0.00890	0.00510	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.00940	<0.0050	0.00620	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0225	0.0170	0.0126	0.0131	0.0412	0.0414	0.0333	0.0398	0.0427	0.0459	0.0408	0.0352	0.0476	0.0466	0.0417
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00420	0.00330	0.0230	0.00410	0.00630	0.00730	0.0105	0.00340	0.00320	0.00370	0.00570	0.00510	0.00580	0.00410	0.00280
Dissolved Orthophosphate (as P)	0.00130	0.001000	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	0.00140	0.00140	0.00180	0.00130
Carbon															
Total Organic Carbon	4.49	4.64	5.93	10.4	4.55	4.66	4.92	2.37	2.54	2.54	3.00	2.96	2.56	2.09	2.52
Dissolved Organic Carbon	3.15	4.29	5.76	10.2	4.53	4.30	5.36	2.13	2.61	2.47	2.97	2.78	2.73	2.23	2.63
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.102	0.0877	1.28	0.156	0.345	0.373	0.570	0.0376	0.0567	0.112	0.171	0.123	0.160	0.0604	0.0374
Antimony (Sb)	0.000120	<0.00020	<0.00020	<0.00020	0.000130	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020	0.000110	0.000130
Arsenic (As)	0.000520	0.000490	0.000880	0.000870	0.000320	0.000350	0.000440	0.000230	0.000240	0.000260	0.000280	0.000250	0.000320	0.000470	0.000370
Barium (Ba)	0.0390	0.0394	0.0552	0.0931	0.0681	0.0727	0.0663	0.0413	0.0416	0.0441	0.0303	0.0246	0.0345	0.0353	0.0350
Beryllium (Be)	<0.00010	<0.00020	<0.00020	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00010	<0.000050	<0.000050
Boron (B)	0.0170	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	0.0170	0.0170
Cadmium (Cd)	<0.000050	<0.000010	0.0000110	0.0000100	0.0000104	0.0000080	0.0000085	0.0000119	0.0000081	0.0000087	0.0000113	0.0000079	<0.000010	<0.000050	<0.000050
Calcium (Ca)	27.7	28.3	32.7	24.2	27.1	27.7	27.9	17.1	17.0	17.8	12.0	10.6	14.1	25.5	26.4
Chromium (Cr)	0.000420	0.000450	0.00150	0.000330	0.000440	0.000470	0.000700	0.000160	0.000260	0.000200	0.000220	0.000270	0.000240	0.000400	0.000410
Cobalt (Co)	<0.00010	<0.00020	0.000680	<0.00020	0.000220	0.000240	0.000330	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010
Copper (Cu)	0.00150	0.00200	0.00470	0.00200	0.00263	0.00287	0.00309	0.000960	0.00111	0.00122	0.00124	0.00110	0.00130	0.000910	0.00110
Iron (Fe)	0.0730	0.0740	1.21	0.134	0.404	0.426	0.606	0.246	0.240	0.268	0.235	0.185	0.241	0.0430	0.0390
Lead (Pb)	<0.000050	<0.00010	0.000410	<0.00010	0.000117	0.000154	0.000182	<0.000050	0.0000500	0.0000690	0.0000840	0.0000800	<0.00010	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0020	<0.0020	<0.0020	0.00110	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010
Magnesium (Mg)	4.87	5.60	6.99	14.1	5.46	5.93	5.81	2.83	3.01	3.16	2.05	1.64	2.30	4.64	5.40

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS02	WQS04B	WQS03	WQS06	WQS06	WQS05	WQS08	WQS09	WQS10	WQS11-US	WQS11	WQS12	WQS01	WQS02
Date	14-Dec-2017	14-Dec-2017	12-Dec-2017	14-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	14-Dec-2017	12-Dec-2017	18-Jan-2018	17-Jan-2018
Time	-	1:30:00 PM	2:00:00 PM	9:30:00 AM	1:00:00 PM	-	1:45:00 PM	3:00:00 PM	12:00:00 PM	11:00:00 AM	10:00:00 AM	2:15:00 PM	3:45:00 PM	11:20:00 AM	10:30:00 AM
QAQC	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2036162-14	L2036162-2	L2036162-4	L2036162-3	L2036162-6	L2036162-13	L2036162-5	L2036162-7	L2036162-8	L2036162-9	L2036162-11	L2036162-10	L2036162-12	L2047188-4	L2047188-1
Total Metals (cont'd)															
Manganese (Mn)	0.00276	0.00384	0.0406	0.00253	0.0121	0.0128	0.0196	0.0262	0.0215	0.0220	0.0182	0.0151	0.0198	0.00190	0.00348
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000115	0.000130	0.000190	0.000220	0.000542	0.000595	0.000457	0.000575	0.000569	0.000528	0.000408	0.000374	0.000480	0.000129	0.000166
Nickel (Ni)	<0.00050	<0.0010	0.00160	<0.0010	0.000760	0.000820	0.000930	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.184	0.210	0.450	0.340	0.494	0.539	0.489	0.287	0.292	0.305	0.396	0.343	0.440	0.164	0.179
Selenium (Se)	0.0000860	<0.00010	<0.00010	<0.00010	0.000125	0.000116	0.000110	0.000106	0.0000990	0.0000840	<0.000050	<0.000050	<0.00010	0.0000540	0.0000640
Silicon (Si)	4.52	4.69	7.05	4.66	3.83	4.02	4.52	4.12	4.05	4.19	3.37	2.84	3.85	3.64	3.67
Silver (Ag)	<0.000010	<0.000020	<0.000020	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000020	<0.000010	<0.000010
Sodium (Na)	3.90	4.30	4.70	6.30	3.20	3.30	3.50	2.10	2.20	2.20	<2.0	<2.0	2.20	4.20	4.20
Strontium (Sr)	0.131	0.132	0.150	0.173	0.0984	0.104	0.114	0.0811	0.0827	0.0858	0.0547	0.0471	0.0682	0.124	0.127
Sulphur (S)	0.880	<1.0	1.50	<1.0	10.2	10.3	8.16	1.93	2.57	2.45	1.75	1.53	2.30	0.880	1.02
Thallium (Tl)	<0.000010	<0.000020	<0.000020	<0.000020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000020	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00020	<0.00020	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	0.0350	<0.010	<0.010	0.01000	0.0150	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000155	0.000163	0.000178	0.0000640	0.0000840	0.0000810	0.000106	0.0000640	0.0000640	0.0000680	0.0000400	0.0000360	0.0000490	0.000183	0.000176
Vanadium (V)	0.00107	0.001000	0.00330	<0.0010	0.000870	0.000970	0.00145	<0.00050	0.000500	0.000590	0.000620	0.000510	<0.0010	0.000840	0.000750
Zinc (Zn)	<0.0030	<0.0060	<0.0060	<0.0060	<0.0030	0.00330	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0060	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.0137	0.0226	0.0248	0.0671	0.0147	0.0147	0.0164	0.0258	0.0153	0.0171	0.0186	0.0181	0.0160	0.00530	0.00670
Antimony (Sb)	0.000110	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010
Arsenic (As)	0.000430	0.000370	0.000360	0.000630	0.000160	0.000170	0.000190	0.000180	0.000170	0.000160	0.000180	0.000180	0.000190	0.000440	0.000350
Barium (Ba)	0.0366	0.0330	0.0350	0.0773	0.0603	0.0649	0.0542	0.0418	0.0433	0.0420	0.0262	0.0226	0.0258	0.0354	0.0335
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0150	0.0130	0.0120	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0150	0.0160
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000058	<0.0000050	<0.0000050	0.0000064	0.0000073	0.0000063	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	28.1	23.6	24.8	18.7	22.5	29.2	23.5	15.0	16.0	16.8	11.3	9.85	12.3	25.1	26.0
Chromium (Cr)	0.000340	0.000250	0.000200	0.000180	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000300	0.000240
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00112	0.00159	0.00231	0.00158	0.00199	0.00199	0.00205	0.000840	0.000880	0.000950	0.000790	0.000740	0.000780	0.000700	0.000870
Iron (Fe)	<0.030	<0.030	<0.030	0.0530	<0.030	<0.030	<0.030	0.140	0.124	0.114	0.0450	0.0470	0.0460	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	0.00120	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	4.83	4.46	4.74	10.5	4.78	5.50	4.85	2.68	3.13	3.09	1.75	1.69	1.87	4.81	5.26
Manganese (Mn)	0.000190	0.000750	<0.00070	0.000800	0.00219	0.00219	0.000980	0.0228	0.0147	0.0119	0.00564	0.00520	0.00586	<0.00010	0.000690
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<			

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS02	WQS04B	WQS03	WQS06	WQS06	WQS05	WQS08	WQS09	WQS10	WQS11-US	WQS11	WQS12	WQS01	WQS02
Date	14-Dec-2017	14-Dec-2017	12-Dec-2017	14-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	12-Dec-2017	14-Dec-2017	12-Dec-2017	18-Jan-2018	17-Jan-2018
Time	-	1:30:00 PM	2:00:00 PM	9:30:00 AM	1:00:00 PM	-	1:45:00 PM	3:00:00 PM	12:00:00 PM	11:00:00 AM	10:00:00 AM	2:15:00 PM	3:45:00 PM	11:20:00 AM	10:30:00 AM
QAQC	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2036162-14	L2036162-2	L2036162-4	L2036162-3	L2036162-6	L2036162-13	L2036162-5	L2036162-7	L2036162-8	L2036162-9	L2036162-11	L2036162-10	L2036162-12	L2047188-4	L2047188-1
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	98.5	117	103	95.9	96.9	109	100.0	99.3	107	91.4	97.4	100	105	99.3	104
Chrysene d12	119	124	104	119	115	116	117	116	107	126	120	102	97.9	97.7	113
Naphthalene d8	124	108	108	103	105	102	101	105	104	101	116	119	118	98.8	107
Phenanthrene d10	115	122	123	116	115	123	107	116	113	113	114	120	123	124	113
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS11B	WQS01	WQS01	WQS02	WQS04B	WQS04B
Date	17-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	17-Jan-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	20-Feb-2018	20-Feb-2018
Time	-	1:25:00 PM	10:30:00 AM	3:25:00 PM	1:45:00 PM	-	1:00:00 PM	2:30:00 PM	4:12:00 PM	12:50:00 PM	12:00:00 PM	-	11:10:00 AM	9:50:00 AM	-
QAQC	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Duplicate
ALS Sample ID	L2047188-11	L2047188-6	L2047188-3	L2047188-9	L2047188-7	L2047188-12	L2047188-5	L2047188-8	L2047188-10	L2047188-2	L2059721-2	L2059721-6	L2059721-1	L2059721-8	L2059721-11
<i>In Situ</i>															
Temperature (°C)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.10
pH	8.36	8.04	8.72	8.43	8.60	8.60	8.36	8.10	8.02	8.40	8.41	8.41	8.91	8.19	8.19
Conductivity (µS/cm)	224	239	315	243	242	242	143	152	157	94.4	94.0	94.0	55.8	94.8	94.8
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	8.20	8.80	20.9	7.50	7.00	8.50	6.40	6.50	7.00	7.90	<5.0	<5.0	6.20	5.80	6.20
Conductivity (µS/cm)	177	191	250	191	195	194	114	122	125	75.5	175	175	186	208	204
Hardness (as CaCO ₃)	86.2	94.4	130	92.6	91.6	92.5	52.7	57.0	58.3	33.6	88.2	89.0	94.5	102	106
pH	8.18	8.16	8.27	8.00	8.05	8.04	7.82	7.90	7.93	7.67	8.29	8.29	8.31	8.39	8.19
Total Suspended Solids	<3.0	3.50	<3.0	<3.0	3.50	4.70	32.3	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	121	115	148	118	119	122	72.0	82.0	91.0	44.0	108	107	111	130	129
Turbidity (NTU)	1.000	2.31	0.720	2.56	2.61	2.58	9.10	0.890	1.03	1.95	0.910	0.860	0.380	0.910	0.900
Acidity (as CaCO ₃)	<1.0	<1.0	<1.0	1.20	1.10	<1.0	1.80	1.40	1.30	1.50	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO ₃)	95.3	99.2	144	68.4	76.4	76.1	53.3	57.6	58.2	34.4	94.7	94.4	104	112	111
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.510	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0360	0.0380	0.0590	0.0370	0.0370	0.0370	0.0330	0.0330	0.0330	0.0250	0.0360	0.0340	0.0380	0.0390	0.0410
Sulphate (SO ₄)	2.74	4.89	1.65	31.3	23.4	23.3	5.53	6.89	6.94	4.32	2.60	2.60	3.03	5.72	5.92
Nutrients															
Total Nitrogen	0.0760	0.0780	0.127	0.106	0.101	0.1000	0.0750	0.0750	0.0780	0.0890	0.0900	0.123	0.0900	0.108	0.0950
Total Kjeldahl Nitrogen	0.0770	0.0840	0.130	0.0650	0.0610	0.0800	<0.050	0.0560	0.0500	0.0790	<0.050	<0.050	<0.050	0.0540	<0.050
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0415	0.0287	0.0362	0.0699	0.0561	0.0560	0.0672	0.0575	0.0563	0.0407	0.0551	0.0546	0.0472	0.0386	0.0390
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00260	0.00400	0.00270	0.00380	0.00450	0.00480	0.00420	0.00350	0.00360	0.00470	0.00360	0.00250	<0.0020	0.00280	0.00300
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	0.00150	0.00170	0.00120	0.00120	0.001000
Carbon															
Total Organic Carbon	2.55	3.05	5.35	2.67	2.78	2.82	1.50	1.57	1.52	2.33	1.82	1.78	2.21	3.07	2.50
Dissolved Organic Carbon	2.47	3.11	5.63	2.50	2.75	2.58	1.50	1.80	1.50	2.45	1.93	1.76	2.45	2.60	2.62
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0616	0.104	0.0448	0.124	0.131	0.139	0.152	0.0290	0.0474	0.0680	0.0469	0.0313	0.0223	0.0345	0.0364
Antimony (Sb)	0.000110	0.000160	<0.00010	<0.00010	0.000120	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000480	0.000320	0.000640	0.000150	0.000230	0.000230	0.000220	0.000180	0.000190	0.000200	0.000440	0.000360	0.000380	0.000290	0.000320
Barium (Ba)	0.0433	0.0383	0.0956	0.0671	0.0567	0.0568	0.0416	0.0404	0.0408	0.0254	0.0348	0.0332	0.0358	0.0368	0.0377
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0170	0.0150	0.0130	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0190	0.0190	0.0200	0.0160	0.0160
Cadmium (Cd)	<0.000050	<0.000050	0.000054	<0.000050	0.000057	0.000061	0.000069	0.000051	<0.000050	0.000077	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium (Ca)	27.5	29.4	27.6	27.6	28.1	28.9	17.5	18.8	19.1	10.8	26.3	26.5	28.4	29.3	30.7
Chromium (Cr)	0.000480	0.000400	0.000190	0.000180	0.000340	0.000320	0.000360	0.000190	0.000170	0.000140	0.000330	0.000340	0.000360	0.000690	0.000260
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	0.000110	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00142	0.00151	0.000850	0.00139	0.00159	0.00152	0.000800	0.000840	0.000710	0.000890	0.000820	0.000760	0.000930	0.00111	0.00113
Iron (Fe)	0.0420	0.120	0.0310	0.131	0.159	0.158	0.287	0.177	0.153	0.115	0.0330	<0.030	<0.030	0.0450	0.0470
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000740	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	6.60	5.73	15.4	5.53	5.54	5.79	2.83	3.06	3.21	1.76	4.71	4.62	5.71	5.91	6.35

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS11B	WQS01	WQS01	WQS02	WQS04B	WQS04B
Date	17-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	17-Jan-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	20-Feb-2018	20-Feb-2018
Time	-	1:25:00 PM	10:30:00 AM	3:25:00 PM	1:45:00 PM	-	1:00:00 PM	2:30:00 PM	4:12:00 PM	12:50:00 PM	12:00:00 PM	-	11:10:00 AM	9:50:00 AM	-
QAQC	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Duplicate
ALS Sample ID	L2047188-11	L2047188-6	L2047188-3	L2047188-9	L2047188-7	L2047188-12	L2047188-5	L2047188-8	L2047188-10	L2047188-2	L2059721-2	L2059721-6	L2059721-1	L2059721-8	L2059721-11
Total Metals (cont'd)															
Manganese (Mn)	0.00414	0.00675	0.00105	0.00613	0.00694	0.00724	0.0190	0.00587	0.00611	0.0126	0.00174	0.000860	0.00277	0.00463	0.00459
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000144	0.000179	0.000297	0.000479	0.000415	0.000395	0.000524	0.000508	0.000525	0.000379	0.000140	0.000127	0.000168	0.000194	0.000180
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	0.000610	0.000540	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.250	0.230	0.307	0.442	0.377	0.381	0.282	0.261	0.277	0.330	0.176	0.163	0.195	0.228	0.240
Selenium (Se)	0.0000580	0.0000650	<0.000050	0.000118	0.0000760	0.0000640	0.0001	0.0000910	0.0000720	<0.000050	<0.000050	0.0000530	<0.000050	<0.000050	<0.000050
Silicon (Si)	3.69	3.74	3.41	2.83	3.13	3.10	3.89	3.61	3.64	2.69	3.64	3.58	3.67	3.51	3.62
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	5.10	4.30	8.10	3.60	3.70	3.70	2.10	2.30	2.30	<2.0	4.40	4.20	4.60	4.50	4.60
Strontium (Sr)	0.129	0.130	0.185	0.0995	0.111	0.116	0.0816	0.0809	0.0867	0.0491	0.126	0.124	0.128	0.129	0.136
Sulphur (S)	0.950	1.76	0.680	10.1	7.78	7.61	1.80	2.08	2.21	1.55	1.02	0.950	1.04	1.88	1.95
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000177	0.000179	0.000112	0.0000860	0.000114	0.000114	0.0000610	0.0000620	0.0000670	0.0000290	0.000232	0.000227	0.000220	0.000229	0.000226
Vanadium (V)	0.000920	0.000690	<0.00050	<0.00050	<0.00050	0.000510	0.000580	<0.00050	<0.00050	<0.00050	0.000810	0.000750	0.000720	0.000520	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.00730	0.00980	0.0205	0.00500	0.00660	0.00650	0.00410	0.00490	0.00460	0.0102	0.00490	0.00460	0.00650	0.00700	0.00770
Antimony (Sb)	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000330	0.000270	0.000600	<0.00010	0.000160	0.000160	0.000150	0.000150	0.000140	0.000150	0.000420	0.000370	0.000370	0.000310	0.000290
Barium (Ba)	0.0353	0.0384	0.0972	0.0638	0.0565	0.0556	0.0382	0.0390	0.0411	0.0244	0.0342	0.0355	0.0358	0.0394	0.0396
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0150	0.0130	0.0120	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0190	0.0190	0.0190	0.0150	0.0150
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	25.7	27.7	26.1	27.9	27.2	27.7	16.3	17.6	17.9	10.4	27.3	27.6	28.2	30.5	32.0
Chromium (Cr)	0.000270	0.000160	<0.00010	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	0.000170	0.000240	0.000240	0.000180	0.000170
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000860	0.00118	0.000740	0.00103	0.00108	0.00107	<0.00050	<0.00050	0.000540	0.000570	0.000620	0.000630	0.000800	0.000910	0.000920
Iron (Fe)	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.0740	0.0680	0.0500	0.0330	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	0.00110	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	5.36	6.14	15.6	5.60	5.75	5.69	2.89	3.19	3.29	1.85	4.83	4.88	5.84	6.30	6.29
Manganese (Mn)	0.00108	0.00132	0.000290	0.000870	0.000830	0.00107	0.00252	0.00198	0.00119	0.00348	0.000150	0.000170	0.00206	0.00335	0.00324
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000000						

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS11B	WQS01	WQS01	WQS02	WQS04B	WQS04B
Date	17-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	17-Jan-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	20-Feb-2018	20-Feb-2018
Time	-	1:25:00 PM	10:30:00 AM	3:25:00 PM	1:45:00 PM	-	1:00:00 PM	2:30:00 PM	4:12:00 PM	12:50:00 PM	12:00:00 PM	-	11:10:00 AM	9:50:00 AM	-
QAQC	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Duplicate
ALS Sample ID	L2047188-11	L2047188-6	L2047188-3	L2047188-9	L2047188-7	L2047188-12	L2047188-5	L2047188-8	L2047188-10	L2047188-2	L2059721-2	L2059721-6	L2059721-1	L2059721-8	L2059721-11
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	96.5	86.5	93.5	89.8	109	82.8	89.3	97.5	89.4	83.3	106	110	101	64.8	76.3
Chrysene d12	102	111	96.7	106	102	89.4	119	100	97.3	110	86.1	86.4	80.5	72.3	77.2
Naphthalene d8	116	107	117	98.9	112	112	109	95.1	89.1	107	113	109	104	116	113
Phenanthrene d10	108	116	114	107	123	102	119	120	114	103	113	115	105	88.8	94.1
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	-	-	-	-	-	-	-	-	-	-	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene	-	-	-	-	-	-	-	-	-	-	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	92.5	88.2	95.5	95.5	91.3
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	97.5	98.1	97.0	96.4	98.6
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS03	WQS06	WQS05	WQS08	WQS09	WQS10	WQS01	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS08	WQS08	WQS09
Date	19-Feb-2018	19-Feb-2018	20-Feb-2018	20-Feb-2018	20-Feb-2018	19-Feb-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	21-Mar-2018	20-Mar-2018	21-Mar-2018	21-Mar-2018	21-Mar-2018
Time	1:25:00 PM	4:00:00 PM	10:25:00 AM	9:10:00 AM	11:20:00 AM	3:00:00 PM	11:25:00 AM	12:57:00 PM	4:35:00 PM	10:30:00 AM	9:48:00 AM	4:35:00 PM	7:50:00 AM	-	8:50:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular
ALS Sample ID	L2059721-3	L2059721-5	L2059721-9	L2059721-7	L2059721-10	L2059721-4	L2071214-2	L2071214-3	L2071214-7	L2071214-1	L2071214-11	L2071214-6	L2071214-9	L2071214-12	L2071214-10
<i>In Situ</i>															
Temperature (°C)	-0.10	0.00	-0.20	0.00	0.00	0.00	0.20	0.50	0.10	0.20	0.20	0.30	0.00	0.00	0.00
pH	8.17	7.70	8.06	8.28	7.85	7.86	8.01	8.11	7.96	8.63	7.84	7.89	7.96	7.96	7.94
Conductivity (µS/cm)	104	36.5	107	53.6	69.2	23.5	101	107	116	98.3	118	117	63.4	63.4	69.2
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	14.4	5.50	5.30	5.90	5.80	5.10	5.20	7.10	7.80	14.5	<5.0	5.20	9.40	9.20	8.50
Conductivity (µS/cm)	280	213	211	125	131	135	202	202	217	321	228	217	128	120	137
Hardness (as CaCO ₃)	142	97.7	99.3	57.2	62.0	63.8	108	119	123	174	120	115	65.9	67.5	72.3
pH	8.48	8.23	8.30	8.14	8.25	8.18	8.21	8.29	8.32	8.26	8.13	8.22	8.03	8.03	8.04
Total Suspended Solids	<3.0	<3.0	<3.0	9.40	<3.0	<3.0	<3.0	<3.0	3.70	<3.0	<3.0	3.90	<3.0	3.50	<3.0
Total Dissolved Solids	164	127	124	82.0	87.0	84.0	117	122	135	189	144	140	84.0	80.0	92.0
Turbidity (NTU)	0.470	1.56	1.20	5.08	0.900	0.750	0.560	0.390	5.15	0.370	1.13	3.31	6.11	4.86	5.05
Acidity (as CaCO ₃)	<1.0	<1.0	<1.0	<1.0	1.10	<1.0	<1.0	<1.0	<1.0	<1.0	1.10	<1.0	1.30	1.30	1.30
Alkalinity, Total (as CaCO ₃)	155	67.3	82.6	57.9	61.5	60.9	100.0	108	113	174	78.6	87.4	57.6	58.1	62.5
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0620	0.0330	0.0380	0.0340	0.0330	0.0320	0.0350	0.0410	0.0410	0.0630	0.0390	0.0410	0.0350	0.0370	0.0350
Sulphate (SO ₄)	1.95	32.2	25.1	5.69	6.93	6.87	2.90	3.35	7.71	2.18	34.5	26.3	5.63	5.64	7.08
Nutrients															
Total Nitrogen	0.142	0.133	0.121	0.135	0.0950	0.0920	0.0910	0.0740	0.0880	0.148	0.122	0.116	0.0910	0.0910	0.0970
Total Kjeldahl Nitrogen	0.0860	<0.050	<0.050	0.0520	<0.050	<0.050	<0.050	0.0640	<0.050	0.0900	<0.050	0.0660	<0.050	<0.050	<0.050
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0107	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0538	0.0837	0.0705	0.0617	0.0613	0.0602	0.0593	0.0319	0.0328	0.0603	0.0849	0.0646	0.0524	0.0527	0.0555
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	<0.0020	0.00280	0.00260	0.0102	0.00280	0.00230	0.00270	0.00250	0.00770	0.00340	0.00240	0.00480	0.00880	0.00740	0.00650
Dissolved Orthophosphate (as P)	0.00110	<0.0010	<0.0010	0.00140	0.00130	0.00120	0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00130	0.001000	0.00120
Carbon															
Total Organic Carbon	4.91	2.28	2.30	1.61	1.36	1.38	1.59	1.98	2.52	4.37	1.94	2.24	1.45	1.65	1.40
Dissolved Organic Carbon	4.47	2.18	2.38	1.32	1.35	1.43	1.50	1.97	2.36	4.01	1.98	2.16	1.62	1.61	1.51
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0272	0.0549	0.137	0.135	0.0141	0.0216	0.0153	0.0192	0.231	0.0187	0.0314	0.128	0.0935	0.116	0.0850
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000120	0.000130	0.000120	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000680	0.000130	0.000160	0.000240	0.000150	0.000170	0.000370	0.000330	0.000380	0.000540	0.000120	0.000230	0.000240	0.000250	0.000240
Barium (Ba)	0.1000	0.0621	0.0573	0.0431	0.0423	0.0419	0.0396	0.0378	0.0433	0.108	0.0725	0.0618	0.0412	0.0435	0.0417
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0160	<0.010	<0.010	<0.010	<0.010	<0.010	0.0220	0.0220	0.0180	0.0210	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.000050	<0.000050	0.0000059	0.0000070	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000064	<0.000050	<0.000050	0.0000062	0.0000069	<0.000050
Calcium (Ca)	26.8	27.4	29.5	17.6	19.2	18.9	30.0	30.8	32.2	34.6	32.0	32.2	19.6	18.8	20.0
Chromium (Cr)	0.000170	0.0001	0.000130	0.000240	<0.00010	0.000140	0.000300	0.000340	0.000380	0.000110	<0.00010	0.000200	0.000150	0.000180	0.000250
Cobalt (Co)	<0.00010	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	0.000260	<0.00010	<0.00010	0.000120	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000690	0.00107	0.00111	0.000820	<0.00050	0.000600	0.000750	0.000860	0.00150	0.000640	0.000980	0.00120	0.000740	0.000790	0.000690
Iron (Fe)	0.0300	0.0610	0.0530	0.405	0.136	0.157	<0.030	<0.030	0.246	<0.030	0.0390	0.143	0.365	0.385	0.308
Lead (Pb)	<0.000050	<0.000050	<0.000050	0.000105	<0.000050	<0.000050	<0.000050	<0.000050	0.0000640	<0.000050	<0.000050	<0.000050	0.0000760	0.0000770	0.0000580
Lithium (Li)	0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00110	0.001000	0.00110	0.00190	0.001000	0.00110	0.00110	<0.0010	<0.0010
Magnesium (Mg)	16.5	5.97	6.11	3.09	3.25	3.33	5.23	5.94	6.70	17.9	6.56	6.37	3.02	3.25	3.36

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS03	WQS06	WQS05	WQS08	WQS09	WQS10	WQS01	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS08	WQS08	WQS09
Date	19-Feb-2018	19-Feb-2018	20-Feb-2018	20-Feb-2018	20-Feb-2018	19-Feb-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	21-Mar-2018	20-Mar-2018	21-Mar-2018	21-Mar-2018	21-Mar-2018
Time	1:25:00 PM	4:00:00 PM	10:25:00 AM	9:10:00 AM	11:20:00 AM	3:00:00 PM	11:25:00 AM	12:57:00 PM	4:35:00 PM	10:30:00 AM	9:48:00 AM	4:35:00 PM	7:50:00 AM	-	8:50:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular
ALS Sample ID	L2059721-3	L2059721-5	L2059721-9	L2059721-7	L2059721-10	L2059721-4	L2071214-2	L2071214-3	L2071214-7	L2071214-1	L2071214-11	L2071214-6	L2071214-9	L2071214-12	L2071214-10
Total Metals (cont'd)															
Manganese (Mn)	0.000690	0.00351	0.00496	0.0325	0.00394	0.00449	0.000420	0.00339	0.0134	0.000290	0.00357	0.00811	0.0238	0.0252	0.0142
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000349	0.000531	0.000387	0.000464	0.000491	0.000488	0.000148	0.000206	0.000230	0.000368	0.000531	0.000433	0.000451	0.000489	0.000450
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000500	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.349	0.442	0.395	0.335	0.287	0.302	0.180	0.202	0.291	0.364	0.475	0.428	0.295	0.309	0.300
Selenium (Se)	<0.000050	0.0000980	0.0000680	0.0000930	0.0000510	0.0000540	0.0000960	0.0000710	<0.000050	<0.000050	0.0000990	0.000105	0.000103	0.0000760	0.0000690
Silicon (Si)	3.45	2.75	3.13	4.19	3.84	3.88	3.58	3.68	3.86	3.47	2.79	3.10	3.81	3.96	3.64
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	9.30	4.00	4.20	2.30	2.50	2.60	4.80	5.10	5.30	9.90	4.80	4.90	2.80	2.90	2.70
Strontium (Sr)	0.194	0.105	0.113	0.0848	0.0883	0.0896	0.135	0.132	0.140	0.211	0.109	0.116	0.0793	0.0817	0.0826
Sulphur (S)	0.750	11.0	8.18	1.94	2.29	2.44	1.15	1.40	2.73	0.830	12.5	9.24	1.80	1.90	2.32
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000153	0.000106	0.000137	0.0000760	0.0000750	0.0000780	0.000269	0.000254	0.000278	0.000169	0.000129	0.000177	0.0000810	0.0000860	0.0000910
Vanadium (V)	<0.00050	<0.00050	<0.00050	0.000640	<0.00050	<0.00050	0.000740	0.000750	0.000880	<0.00050	<0.00050	<0.00050	0.000550	0.000630	0.000520
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.0155	0.00350	0.00520	0.00620	0.00930	0.00400	0.00450	0.00630	0.0370	0.0131	0.00310	0.0131	0.00760	0.00790	0.00730
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000120	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000680	0.000110	0.000180	0.000150	0.000200	0.000160	0.000410	0.000360	0.000300	0.000590	0.000130	0.000190	0.000230	0.000200	0.000200
Barium (Ba)	0.102	0.0631	0.0607	0.0412	0.0426	0.0428	0.0424	0.0440	0.0459	0.131	0.0794	0.0671	0.0453	0.0452	0.0461
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0160	<0.010	<0.010	<0.010	<0.010	<0.010	0.0220	0.0220	0.0170	0.0190	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000051	0.0000055	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	29.5	29.3	29.2	18.2	19.6	20.1	33.5	35.5	36.4	35.3	36.1	33.5	20.3	20.7	22.4
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000320	0.000310	0.000170	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000600	0.000850	0.000930	<0.00050	0.000560	<0.00050	0.000640	0.000820	0.00112	0.000630	0.000900	0.000980	0.000550	0.000520	0.000520
Iron (Fe)	<0.030	<0.030	<0.030	0.0910	0.166	0.0720	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.188	0.186	0.157
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.00120	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00150	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	16.7	5.93	6.43	2.85	3.16	3.32	5.91	7.31	7.71	20.9	7.34	7.51	3.70	3.86	3.96
Manganese (Mn)	0.000370	0.00170	0.00234	0.000850	0.00516	0.00265	<0.00010	0.00200	0.00637	0.000150	0.00102	0.00264	0.0114	0.0111	0.00654
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.00000500							

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS03	WQS06	WQS05	WQS08	WQS09	WQS10	WQS01	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS08	WQS08	WQS09
Date	19-Feb-2018	19-Feb-2018	20-Feb-2018	20-Feb-2018	20-Feb-2018	19-Feb-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	21-Mar-2018	20-Mar-2018	21-Mar-2018	21-Mar-2018	21-Mar-2018
Time	1:25:00 PM	4:00:00 PM	10:25:00 AM	9:10:00 AM	11:20:00 AM	3:00:00 PM	11:25:00 AM	12:57:00 PM	4:35:00 PM	10:30:00 AM	9:48:00 AM	4:35:00 PM	7:50:00 AM	-	8:50:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular
ALS Sample ID	L2059721-3	L2059721-5	L2059721-9	L2059721-7	L2059721-10	L2059721-4	L2071214-2	L2071214-3	L2071214-7	L2071214-1	L2071214-11	L2071214-6	L2071214-9	L2071214-12	L2071214-10
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	98.2	83.0	96.5	99.3	70.4	104	82.8	95.9	87.2	86.0	81.8	93.1	93.9	97.2	83.1
Chrysene d12	79.4	69.6	76.8	83.4	76.8	82.2	82.2	93.2	93.8	87.9	83.7	90.7	90.4	88.2	83.9
Naphthalene d8	105	87.8	101	108	119	113	111	90.9	88.9	89.0	86.9	89.1	102	85.5	85.9
Phenanthrene d10	103	81.4	101	109	94.4	111	93.3	104	103	97.1	89.9	98.5	102	106	94.4
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-
Ethylbenzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-
Styrene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-
Toluene	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	-	-	-	-	-	-	-	-	-
ortho-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-
Xylene	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	88.2	94.6	93.1	93.9	95.1	90.2	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	97.8	96.6	96.9	96.7	96.6	97.7	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS10	WQS10	WQS12	WQS01	WQS02	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS12
Date	20-Mar-2018	20-Mar-2018	20-Mar-2018	18-Apr-2018	18-Apr-2018	18-Apr-2018	17-Apr-2018	18-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018
Time	3:35:00 PM	-	2:37:00 PM	10:05:00 AM	9:22:00 AM	-	10:23:00 AM	10:53:00 AM	11:50:00 AM	10:47:00 AM	-	9:45:00 AM	12:54:00 PM	1:49:00 PM	2:47:00 PM
QAQC	Regular	Duplicate	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular
ALS Sample ID	L2071214-5	L2071214-8	L2071214-4	L2082789-1	L2082789-2	L2082789-4	L2082790-2	L2082789-3	L2082790-4	L2082790-3	L2082790-10	L2082790-1	L2082790-5	L2082790-6	L2082790-9
<i>In Situ</i>															
Temperature (°C)	0.10	0.10	0.80	0.20	0.50	0.50	0.10	0.20	0.20	0.30	0.30	0.00	0.00	0.10	0.80
pH	7.96	7.96	7.92	8.01	8.11	8.11	7.96	8.63	7.84	7.89	7.89	7.96	7.94	7.96	7.92
Conductivity (µS/cm)	69.5	69.5	51.7	101	107	107	116	98.3	118	117	117	63.4	69.2	69.5	51.7
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	8.10	6.70	9.30	11.2	21.1	21.2	30.4	26.7	16.8	22.7	22.8	30.3	26.3	24.1	37.3
Conductivity (µS/cm)	132	131	93.1	182	182	181	172	247	214	201	241	101	114	119	112
Hardness (as CaCO ₃)	72.3	72.1	48.1	82.9	83.8	82.0	97.6	111	119	113	110	54.4	61.6	62.8	56.8
pH	8.07	8.04	7.81	8.02	8.02	8.03	8.05	8.27	7.93	7.98	7.99	7.65	7.73	7.76	7.57
Total Suspended Solids	<3.0	<3.0	<3.0	3.40	<3.0	<3.0	7.00	<3.0	5.80	7.80	8.60	19.4	10.6	7.00	10.4
Total Dissolved Solids	84.0	83.0	67.0	113	116	120	129	143	159	163	156	81.0	90.0	94.0	97.0
Turbidity (NTU)	1.77	1.76	1.51	4.74	1.67	1.50	8.25	0.840	7.32	10.5	9.35	11.4	10.9	7.40	12.6
Acidity (as CaCO ₃)	1.50	<1.0	1.80	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.40	<1.0	<1.0	1.60
Alkalinity, Total (as CaCO ₃)	62.5	61.8	41.2	98.1	96.5	96.6	102	138	87.2	92.0	91.3	57.6	63.6	65.5	56.6
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	1.31	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	3.92
Fluoride (F)	0.0350	0.0360	0.0290	0.0340	0.0360	0.0360	0.0410	0.0600	0.0380	0.0390	0.0390	0.0340	0.0340	0.0350	0.0350
Sulphate (SO ₄)	6.90	6.90	4.92	2.53	2.73	2.71	9.44	1.38	42.0	31.3	31.2	4.50	6.98	7.29	5.48
Nutrients															
Total Nitrogen	0.0860	0.0840	0.112	0.140	0.241	0.192	0.231	0.278	0.199	0.209	0.211	0.172	0.158	0.237	0.446
Total Kjeldahl Nitrogen	<0.050	<0.050	0.0620	0.0910	0.125	0.150	0.186	0.167	0.111	0.163	0.120	0.136	0.126	0.114	0.304
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0177
Nitrate (as N)	0.0506	0.0491	0.0460	0.0551	0.0591	0.0604	0.0576	0.0492	0.0754	0.0685	0.0685	0.0403	0.0422	0.126	0.152
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00160
Total Phosphorus (as P)	0.00750	0.00540	0.00660	0.00630	0.00430	0.00370	0.0155	0.00830	0.0112	0.0120	0.0133	0.0245	0.0172	0.0121	0.0272
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	0.00170	0.00120	<0.0010	<0.0010	0.00170	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	0.001000	0.00130	0.00560
Carbon															
Total Organic Carbon	1.34	1.38	2.21	3.70	6.39	6.31	7.84	7.53	5.75	6.43	6.37	5.12	4.72	4.57	7.67
Dissolved Organic Carbon	1.25	1.58	2.28	3.94	6.28	6.40	7.56	7.08	5.63	6.39	6.24	4.60	4.59	4.45	7.78
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0556	0.0557	0.0528	0.185	0.0818	0.0752	0.510	0.0432	0.309	0.449	0.721	0.645	0.493	0.339	0.539
Antimony (Sb)	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000180	0.000170	0.000200	0.000460	0.000410	0.000410	0.000620	0.000630	0.000340	0.000430	0.000430	0.000620	0.000550	0.000420	0.000560
Barium (Ba)	0.0417	0.0419	0.0277	0.0399	0.0374	0.0361	0.0427	0.0924	0.0817	0.0703	0.0637	0.0465	0.0483	0.0462	0.0397
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	0.0220	0.0210	0.0210	0.0170	0.0190	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000118	0.0000050	0.0000088	0.0000106	0.0000077	0.0000158	0.0000114	0.0000092	0.0000141
Calcium (Ca)	20.2	20.7	13.5	28.0	25.9	25.8	29.6	24.2	35.3	32.0	28.8	16.6	19.0	20.0	16.3
Chromium (Cr)	0.000150	0.000130	<0.00010	0.000460	0.000390	0.000420	0.000750	0.000210	0.000470	0.000890	0.000700	0.000750	0.000550	0.000480	0.000650
Cobalt (Co)	<0.00010	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	0.00110	<0.00010	0.000230	0.000540	0.000510	0.000380	0.000310	0.000200	0.000300
Copper (Cu)	0.000660	0.000630	0.000720	0.00154	0.00199	0.00196	0.00441	0.00106	0.00223	0.00306	0.00300	0.00202	0.00189	0.00166	0.00218
Iron (Fe)	0.223	0.227	0.116	0.170	0.0760	0.0690	0.824	0.0390	0.407	0.598	0.629	1.11	0.938	0.726	0.752
Lead (Pb)	<0.000050	0.0000550	<0.000050	<0.000050	<0.000050	<0.000050	0.0000990	<0.000050	0.000126	0.000125	0.000137	0.000247	0.000182	0.000136	0.000190
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	0.00170	0.00110	0.00110	0.00150	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	3.46	3.50	2.25	5.31	5.35	5.42	6.30	14.1	8.15	7.67	6.96	3.39	3.72	4.01	4.05

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS10	WQS10	WQS12	WQS01	WQS02	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS12
Date	20-Mar-2018	20-Mar-2018	20-Mar-2018	18-Apr-2018	18-Apr-2018	18-Apr-2018	17-Apr-2018	18-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018
Time	3:35:00 PM	-	2:37:00 PM	10:05:00 AM	9:22:00 AM	-	10:23:00 AM	10:53:00 AM	11:50:00 AM	10:47:00 AM	-	9:45:00 AM	12:54:00 PM	1:49:00 PM	2:47:00 PM
QA/QC	Regular	Duplicate	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular
ALS Sample ID	L2071214-5	L2071214-8	L2071214-4	L2082789-1	L2082789-2	L2082789-4	L2082790-2	L2082789-3	L2082790-4	L2082790-3	L2082790-10	L2082790-1	L2082790-5	L2082790-6	L2082790-9
Total Metals (cont'd)															
Manganese (Mn)	0.0102	0.00999	0.00915	0.00562	0.00499	0.00493	0.0297	0.000720	0.0150	0.0217	0.0208	0.0746	0.0505	0.0315	0.0441
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000058	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000484	0.000526	0.000368	0.000130	0.000137	0.000132	0.000169	0.000236	0.000518	0.000393	0.000374	0.000483	0.000403	0.000404	0.000259
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00171	<0.00050	0.000820	0.00121	0.00110	0.000630	0.000580	0.000560	0.00106
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.303	0.303	0.377	0.224	0.216	0.217	0.334	0.345	0.555	0.504	0.482	0.410	0.403	0.420	1.19
Selenium (Se)	0.0000840	0.0000610	<0.000050	0.0000760	0.0000610	0.0000670	0.0000680	<0.000050	0.0000990	0.000125	0.0000870	0.0000850	0.0000800	0.0000770	<0.000050
Silicon (Si)	3.62	3.66	2.74	3.89	3.69	3.71	4.16	3.50	3.23	3.59	4.12	4.74	4.47	4.18	3.78
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	3.00	2.70	2.50	4.20	4.40	4.20	5.40	5.30	5.50	5.60	5.00	2.80	2.90	3.20	4.00
Strontium (Sr)	0.0833	0.0883	0.0583	0.124	0.113	0.112	0.131	0.168	0.128	0.128	0.135	0.0796	0.0838	0.0853	0.0798
Sulphur (S)	2.28	2.40	1.79	0.840	0.930	0.860	3.27	0.590	14.8	10.7	10.8	1.34	2.25	2.46	1.68
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000900	0.0000930	0.0000480	0.000229	0.000193	0.000197	0.000216	0.0000880	0.000151	0.000163	0.000171	0.0000740	0.0000860	0.0000920	0.0000660
Vanadium (V)	<0.00050	<0.00050	<0.00050	0.00124	0.000960	0.000940	0.00142	0.000600	0.001000	0.00124	0.00160	0.00195	0.00158	0.00118	0.00153
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.00420	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.00560	0.00490	0.00780	0.0169	0.0308	0.0294	0.132	0.0248	0.0230	0.0585	0.0587	0.0403	0.0359	0.0304	0.0906
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000170	0.000170	0.000170	0.000360	0.000330	0.000330	0.000330	0.000560	0.000160	0.000240	0.000220	0.000300	0.000280	0.000230	0.000320
Barium (Ba)	0.0478	0.0448	0.0301	0.0350	0.0323	0.0312	0.0394	0.0878	0.0804	0.0701	0.0653	0.0381	0.0397	0.0378	0.0346
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	0.0190	0.0180	0.0180	0.0190	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000064	<0.0000050	<0.0000050	0.0000061	<0.0000050	0.0000054	0.0000051	0.0000058	<0.0000050
Calcium (Ca)	22.4	22.1	14.7	25.7	25.5	25.1	28.7	23.1	33.6	32.4	31.2	16.4	18.7	19.5	16.1
Chromium (Cr)	<0.00010	<0.00010	<0.00010	0.000280	0.000330	0.000320	0.000280	0.000150	<0.00010	0.000110	0.000140	0.000190	0.000170	0.000140	0.000170
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000420	<0.00010	<0.00010	0.000110	0.000140	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000500	<0.00050	0.000600	0.00104	0.00161	0.00161	0.00339	0.000880	0.00162	0.00218	0.00216	0.00162	0.00106	0.000980	0.00150
Iron (Fe)	0.103	0.102	0.0490	<0.030	0.0310	0.0300	0.279	<0.030	0.0340	0.0920	0.0960	0.417	0.363	0.285	0.193
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00170	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	3.99	4.11	2.74	4.52	4.85	4.72	6.32	13.0	8.48	7.79	7.68	3.28	3.61	3.46	4.05
Manganese (Mn)	0.00437	0.00435	0.00323	0.000450	0.00121	0.00151	0.00994	0.000340	0.001000	0.00202	0.00334	0.00168	0.00211	0.00228	0.00182
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000087	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000505	0.000527	0.000364	0.000121	0.000128	0.000141	0.000157	0.000232	0.000501	0.000413	0.000378	0.000422	0.000406	0.000428	0.000301
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00106	<0.00050	<0.00050	0.000590	0.000610	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.335	0.336	0.413	0.156	0.172	0.166	0.304	0.305	0.540	0.471	0.449	0.338	0.346	0.348	1.25
Selenium (Se)	0.0000700	0.0000940	<0.000050	<0.000050	<0.000050	<0.000050	0.0000690	<0.000050	0.0000890	0.0000700	0.000107	<0.000050	0.0000630	0.0000740	<0.000050
Silicon (Si)	3.42	3.54	2.64	3.45	3.47	3.41	3.63	3.26	2.76	2.97	3.05	3.87	3.62	3.65	3.28
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	3.00	2.90	2.50	4.10	4.00	4.00	4.60	7.40	5.40	5.10	4.80	2.70	2.80	2.80	4.00
Strontium (Sr)	0.0937	0.0944	0.0609	0.133	0.122	0.127	0.134	0.173	0.131	0.137	0.132	0.0810	0.0887	0.0870	0.0823
Sulphur (S)	2.18	2.05	1.57	0.670	0.820	0.930	2.93	0.530	13.8	10.5	10.4	1.36	2.03	2.28	1.77
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000850	0.0000880	0.0000390	0.000242	0.000204	0.000210	0.000208	0.0001	0.000144	0.000151	0.000164	0.0000670	0.0000770	0.0000820	0.0000590
Vanadium (V)	<0.00050	<0.00050	<0.00050	0.000730	0.000730	0.000710	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.000510	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS10	WQS10	WQS12	WQS01	WQS02	WQS02	WQS04B	WQS03	WQS06	WQS05	WQS05	WQS08	WQS09	WQS10	WQS12
Date	20-Mar-2018	20-Mar-2018	20-Mar-2018	18-Apr-2018	18-Apr-2018	18-Apr-2018	17-Apr-2018	18-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018	17-Apr-2018
Time	3:35:00 PM	-	2:37:00 PM	10:05:00 AM	9:22:00 AM	-	10:23:00 AM	10:53:00 AM	11:50:00 AM	10:47:00 AM	-	9:45:00 AM	12:54:00 PM	1:49:00 PM	2:47:00 PM
QAQC	Regular	Duplicate	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular
ALS Sample ID	L2071214-5	L2071214-8	L2071214-4	L2082789-1	L2082789-2	L2082789-4	L2082790-2	L2082789-3	L2082790-4	L2082790-3	L2082790-10	L2082790-1	L2082790-5	L2082790-6	L2082790-9
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	-	-	-	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	79.9	89.0	87.9	90.0	86.0	88.9	71.1	90.1	89.9	87.4	87.7	88.2	86.0	86.1	82.4
Chrysene d12	83.6	86.3	90.6	79.3	78.2	82.9	70.1	85.4	86.6	74.1	79.0	82.9	83.3	80.8	75.2
Naphthalene d8	95.1	82.5	114	101	102	107	86.6	109	96.1	98.6	97.0	112	98.5	101	92.8
Phenanthrene d10	97.3	101	104	89.8	87.5	91.1	74.8	92.8	93.5	100	91.6	93.6	93.5	92.6	85.4
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS02	WQS04B	WQS04B	WQS05	WQS06	WQS06-US	WQS08	WQS09	WQS10	WQS11-US	WQS01	WQS01	WQS03	WQS03-DS	WQS12
Date	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	24-May-2018	24-May-2018	24-May-2018	24-May-2018	24-May-2018
Time	11:11:00 AM	12:00:00 AM	11:50:00 AM	12:27:00 PM	1:45:00 PM	2:42:00 PM	10:22:00 AM	1:15:00 PM	3:30:00 PM	4:20:00 PM	12:00:00 AM	9:51:00 AM	10:40:00 AM	11:41:00 AM	1:14:00 PM
QAQC	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular
ALS Sample ID	L2100747-2	L2100747-10	L2100747-4	L2100747-3	L2100747-6	L2100747-7	L2100747-1	L2100747-5	L2100747-8	L2100747-9	L2100747-11	L2100747-12	L2100747-13	L2100747-14	L2100747-15
<i>In Situ</i>															
Temperature (°C)	3.30	4.40	4.40	5.30	6.70	6.40	4.00	5.40	6.30	7.50	2.90	2.90	3.70	5.90	7.60
pH	7.86	8.10	8.10	7.83	7.87	7.90	7.98	7.71	7.79	7.71	7.27	7.27	6.90	7.30	7.12
Conductivity (µS/cm)	97.0	100	100	104	111	105	58.0	67.0	64.8	62.9	90.0	90.0	7.51	88.6	63.1
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	34.6	39.4	36.2	32.8	32.9	28.3	25.6	29.3	34.7	34.6	30.1	30.3	99.9	122	29.9
Conductivity (µS/cm)	80.7	87.5	84.7	89.2	94.7	89.8	48.1	56.8	55.4	54.4	78.8	77.4	62.7	75.9	55.1
Hardness (as CaCO ₃)	41.5	44.0	42.7	44.2	45.4	43.4	23.8	27.2	26.8	26.0	39.7	40.6	37.0	42.8	26.7
pH	7.90	7.92	7.93	7.88	7.83	7.81	7.54	7.72	7.72	7.67	7.92	7.87	7.74	7.73	7.62
Total Suspended Solids	34.9	47.7	51.1	38.1	22.1	15.3	40.7	39.7	51.7	66.7	43.7	39.3	4.30	24.7	110
Total Dissolved Solids	70.0	74.0	71.0	78.0	76.0	66.0	44.0	53.0	46.0	53.0	65.0	61.0	74.0	88.0	53.0
Turbidity (NTU)	39.3	56.3	55.4	40.1	22.4	13.5	28.8	32.7	39.0	54.0	43.0	41.1	6.16	22.2	67.5
Acidity (as CaCO ₃)	1.50	1.40	1.40	1.40	1.40	1.40	1.90	1.50	1.40	1.50	1.40	1.50	1.70	1.90	1.70
Alkalinity, Total (as CaCO ₃)	44.2	46.2	46.5	41.0	35.7	34.0	24.0	27.0	27.4	25.1	41.9	41.9	33.5	34.4	24.8
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0260	0.0280	0.0280	0.0290	0.0310	0.0290	0.0230	0.0240	0.0240	0.0270	0.0250	0.0230	0.0340	0.0410	0.0260
Sulphate (SO ₄)	0.880	1.02	1.02	6.10	12.7	11.7	2.33	3.38	3.05	3.44	0.950	0.960	<0.30	3.73	3.40
Nutrients															
Total Nitrogen	0.151	0.180	0.184	0.182	0.179	0.160	0.158	0.148	0.148	0.247	0.153	0.157	0.331	0.452	0.205
Total Kjeldahl Nitrogen	0.175	0.166	0.188	0.184	0.159	0.131	0.131	0.111	0.134	0.211	0.136	0.143	0.326	0.468	0.203
Ammonia as N	<0.0050	<0.0050	0.00870	0.00700	0.00950	<0.0050	0.00770	<0.0050	0.00580	0.0208	<0.0050	0.00940	0.00990	0.00790	0.00570
Nitrate (as N)	0.00540	<0.0050	<0.0050	0.0170	0.0352	0.0389	0.0171	0.0168	0.0153	0.0159	0.00700	0.00800	<0.0050	<0.0050	0.0147
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.0456	0.0664	0.0673	0.0521	0.0299	0.0161	0.0553	0.0509	0.0669	0.0946	0.0403	0.0389	0.00930	0.0474	0.0991
Dissolved Orthophosphate (as P)	0.00200	0.00210	0.00170	0.00140	<0.0010	0.001000	0.00170	0.00190	0.00180	0.00340	0.00250	0.00220	<0.0010	0.00120	0.00320
Carbon															
Total Organic Carbon	6.66	7.32	7.33	7.40	6.75	5.49	5.32	5.63	5.40	6.84	6.29	5.92	15.4	22.4	6.46
Dissolved Organic Carbon	6.17	6.54	6.97	6.46	6.06	5.10	4.64	4.86	4.66	6.06	5.23	5.13	15.7	19.9	5.46
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	1.31	2.01	1.93	1.58	0.775	0.449	1.49	1.46	1.74	1.91	1.82	1.000	0.525	0.640	2.15
Antimony (Sb)	0.000130	0.000170	0.000160	0.000140	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	0.000120	0.000150	0.000140	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000950	0.00122	0.00117	0.00107	0.000690	0.000480	0.000720	0.000720	0.000870	0.00110	0.00118	0.000840	0.000670	0.000700	0.00123
Barium (Ba)	0.0323	0.0400	0.0386	0.0489	0.0587	0.0534	0.0365	0.0380	0.0422	0.0447	0.0323	0.0279	0.0410	0.0412	0.0494
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000211	0.0000223	0.0000320	0.0000241	0.0000302	0.0000318	0.0000251	0.0000280	0.0000298	0.0000337	0.0000212	0.0000151	0.0000117	0.0000183	0.0000374
Calcium (Ca)	12.7	13.4	13.0	13.3	13.0	12.9	7.84	8.87	8.63	8.16	12.8	12.3	7.65	9.09	8.55
Chromium (Cr)	0.00157	0.00216	0.00202	0.00177	0.000930	0.000720	0.00107	0.00123	0.00127	0.00172	0.00154	0.00282	0.000750	0.000880	0.00200
Cobalt (Co)	0.000890	0.00129	0.00120	0.00108	0.000660	0.000360	0.000850	0.000790	0.00101	0.00119	0.00113	0.000690	0.000130	0.000440	0.00133
Copper (Cu)	0.00426	0.00574	0.00565	0.00555	0.00588	0.00488	0.00411	0.00423	0.00472	0.00465	0.00500	0.00382	0.00244	0.00361	0.00525
Iron (Fe)	1.06	1.79	1.75	1.65	1.06	0.519	1.23	1.21	1.52	2.16	1.10	0.674	0.308	0.729	2.34
Lead (Pb)	0.000309	0.000535	0.000511	0.000474	0.000331	0.000195	0.000742	0.000635	0.000772	0.000814	0.000317	0.000227	0.0000770	0.000253	0.000903
Lithium (Li)	0.00110	0.00150	0.00140	0.00120	<0.0010	<0.0010	<0.0010	<0.0010	0.00110	0.00120	0.00110	<0.0010	<0.0010	<0.0010	0.00130
Magnesium (Mg)	2.72	3.17	3.00	3.01	2.83	2.32	1.74	1.91	1.95	1.98	2.89	2.53	3.93	4.28	2.08

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS02	WQS04B	WQS04B	WQS05	WQS06	WQS06-US	WQS08	WQS09	WQS10	WQS11-US	WQS01	WQS01	WQS03	WQS03-DS	WQS12
Date	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	24-May-2018	24-May-2018	24-May-2018	24-May-2018	24-May-2018
Time	11:11:00 AM	12:00:00 AM	11:50:00 AM	12:27:00 PM	1:45:00 PM	2:42:00 PM	10:22:00 AM	1:15:00 PM	3:30:00 PM	4:20:00 PM	12:00:00 AM	9:51:00 AM	10:40:00 AM	11:41:00 AM	1:14:00 PM
QAQC	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular
ALS Sample ID	L2100747-2	L2100747-10	L2100747-4	L2100747-3	L2100747-6	L2100747-7	L2100747-1	L2100747-5	L2100747-8	L2100747-9	L2100747-11	L2100747-12	L2100747-13	L2100747-14	L2100747-15
Total Metals (cont'd)															
Manganese (Mn)	0.0598	0.0875	0.0825	0.0682	0.0406	0.0241	0.0710	0.0647	0.0823	0.101	0.0897	0.0545	0.00727	0.0230	0.113
Mercury (Hg)	0.0000089	0.0000096	0.0000106	0.0000081	0.0000069	0.0000087	0.0000059	0.0000063	0.0000070	0.0000086	0.0000075	0.0000069	0.0000098	0.0000116	0.0000082
Molybdenum (Mo)	0.000111	0.0000870	0.0000780	0.000215	0.000393	0.000424	0.000298	0.000299	0.000295	0.000281	0.0000560	0.0000760	0.0000590	0.0000630	0.000255
Nickel (Ni)	0.00164	0.00248	0.00230	0.00209	0.00127	0.000800	0.00116	0.00121	0.00162	0.00227	0.00169	0.00107	0.000650	0.00161	0.00253
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.296	0.423	0.408	0.428	0.438	0.345	0.386	0.400	0.440	0.612	0.296	0.239	0.204	0.362	0.659
Selenium (Se)	<0.000050	0.0000760	<0.000050	0.0000790	0.0000980	0.0000770	0.0000530	0.0000640	0.0000720	<0.000050	0.0000570	<0.000050	<0.000050	0.0000830	<0.000050
Silicon (Si)	5.05	6.17	6.10	5.30	3.53	3.03	4.96	4.73	5.44	5.59	5.80	4.55	3.48	3.93	5.72
Silver (Ag)	<0.000010	0.0000120	<0.000010	<0.000010	<0.000010	<0.000010	0.0000110	<0.000010	<0.000010	0.0000120	<0.000010	<0.000010	<0.000010	<0.000010	0.0000120
Sodium (Na)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.50	<2.0
Strontium (Sr)	0.0609	0.0682	0.0643	0.0585	0.0478	0.0444	0.0421	0.0444	0.0461	0.0425	0.0617	0.0592	0.0502	0.0540	0.0429
Sulphur (S)	<0.50	<0.50	<0.50	1.78	4.07	3.74	0.690	0.890	0.890	0.940	<0.50	<0.50	<0.50	1.21	0.940
Thallium (Tl)	<0.000010	0.0000130	0.0000130	0.0000110	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.0000140	<0.000010	<0.000010	<0.000010	<0.000010	0.0000130
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.0350	0.0480	0.0470	0.0370	0.0160	0.0390	0.0390	0.0350	0.0420	0.0560	0.0330	0.0240	0.0120	<0.010	0.0630
Uranium (U)	0.0000480	0.0000610	0.0000590	0.0000650	0.0000570	0.0000520	0.0000620	0.0000570	0.0000690	0.0000830	0.0000450	0.0000390	0.0000180	0.0000300	0.0000750
Vanadium (V)	0.00327	0.00461	0.00446	0.00376	0.00204	0.00117	0.00323	0.00309	0.00374	0.00503	0.00372	0.00249	0.00107	0.00156	0.00563
Zinc (Zn)	0.00410	0.00640	0.00620	0.00770	0.00490	0.00370	0.00550	0.00560	0.00650	0.00830	0.00500	<0.0030	0.00530	0.00310	0.00960
Dissolved Metals															
Aluminum (Al)	0.0583	0.0764	0.0637	0.0575	0.191	0.0471	0.0745	0.0742	0.0748	0.569	0.0597	0.0543	0.194	0.186	0.0879
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000420	0.000380	0.000410	0.000350	0.000270	0.000240	0.000220	0.000240	0.000230	0.000300	0.000420	0.000420	0.000600	0.000460	0.000300
Barium (Ba)	0.0183	0.0192	0.0184	0.0293	0.0460	0.0476	0.0174	0.0201	0.0194	0.0192	0.0172	0.0177	0.0387	0.0348	0.0199
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	0.0000061	0.0000101	0.0000148	0.0000058	0.0000062	0.0000054	0.0000076	<0.0000050	<0.0000050	0.0000073	0.0000087	0.0000058
Calcium (Ca)	13.0	13.7	13.3	13.7	14.0	13.7	7.61	8.65	8.51	8.20	12.5	12.8	8.27	9.88	8.52
Chromium (Cr)	0.000250	0.000280	0.000260	0.000200	0.000240	0.000200	0.000160	0.000130	0.000200	0.000150	0.000260	0.000230	0.000380	0.000430	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000110	<0.00010
Copper (Cu)	0.00183	0.00221	0.00213	0.00264	0.00349	0.00345	0.00165	0.00176	0.00175	0.00149	0.00165	0.00175	0.00228	0.00292	0.00149
Iron (Fe)	0.0380	0.0470	0.0460	0.0440	0.0410	0.0320	0.0610	0.0560	0.0590	0.0820	0.0370	0.0360	0.105	0.116	0.0760
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	2.22	2.40	2.30	2.42	2.52	2.21	1.16	1.36	1.34	1.35	2.07	2.09	3.97	4.41	1.33
Manganese (Mn)	0.00598	0.00612	0.00585	0.00854	0.00710	0.00515	0.00478	0.00568	0.00776	0.00527	0.00626	0.00560	0.00170	0.00685	0.00533
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000059	0.0000085	<0.0000050
Molybdenum (Mo)	<0.000050	0.0000740	0.0000610	0.000189	0.000397	0.000399	0.000300	0.000291	0.000316	0.000279	<0.000050	<0.000050	<0.000050	0.0000640	0.000297
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000930	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.137	0.166	0.156	0.205	0.283	0.268	0.170	0.175	0.191	0.344	0.121	0.121	0.159	0.317	0.362
Selenium (Se)	<0.000050	<0.000050	0.0000530	0.0000520	0.0000530	0.0000710	<0.000050	<0.000050	0.0000670	<0.000050	0.0000720	<0.000050	0.0000560	0.0000600	<0.000050
Silicon (Si)	3.03	3.20	3.09	2.87	2.60	2.56	2.62	2.52	2.53	2.67	2.82	2.91	2.77	3.23	2.55
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.60	<2.0
Strontium (Sr)	0.0591	0.0609	0.0599	0.0555	0.0474	0.0447	0.0367	0.0394	0.0400	0.0372	0.0560	0.0565	0.0531	0.0554	0.0377
Sulphur (S)	<0.50	<0.50	<0.50	1.73	4.28	4.01	<0.50	0.770	0.650	0.990	<0.50	<0.50	<0.50	1.06	0.820
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000280	0.0000310	0.0000330	0.0000360	0.0000400	0.0000430	0.0000270	0.0000290	0.0000280	0.0000270	0.0000260	0.0000270	0.0000120	0.0000210	0.0000270
Vanadium (V)	0.000810	0.000800	0.000760	0.000570	0.000570	0.000570	<0.00050	0.000580	0.000560	0.000600	0.000580	0.000570	<0.00050	<0.00050	0.000640
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS02	WQS04B	WQS04B	WQS05	WQS06	WQS06-US	WQS08	WQS09	WQS10	WQS11-US	WQS01	WQS01	WQS03	WQS03-DS	WQS12
Date	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	23-May-2018	24-May-2018	24-May-2018	24-May-2018	24-May-2018	24-May-2018
Time	11:11:00 AM	12:00:00 AM	11:50:00 AM	12:27:00 PM	1:45:00 PM	2:42:00 PM	10:22:00 AM	1:15:00 PM	3:30:00 PM	4:20:00 PM	12:00:00 AM	9:51:00 AM	10:40:00 AM	11:41:00 AM	1:14:00 PM
QAQC	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular
ALS Sample ID	L2100747-2	L2100747-10	L2100747-4	L2100747-3	L2100747-6	L2100747-7	L2100747-1	L2100747-5	L2100747-8	L2100747-9	L2100747-11	L2100747-12	L2100747-13	L2100747-14	L2100747-15
Polycyclic Aromatic Hydrocarbons <i>(cont'd)</i>															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	86.8	81.2	87.6	85.9	88.5	85.2	84.1	86.4	76.6	95.6	102	91.8	86.3	84.1	88.4
Chrysene d12	85.8	78.9	85.2	88.0	87.2	85.9	79.4	84.6	89.3	92.8	99.9	88.2	86.0	82.9	87.8
Naphthalene d8	96.5	80.6	87.4	91.1	93.3	96.9	88.4	96.3	101	96.8	109	96.8	92.5	89.7	96.3
Phenanthrene d10	99.2	89.5	96.7	99.6	99.6	99.2	94.2	98.7	102	105	114	101	97.4	95.6	100
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.00120	<0.0010	0.00180	<0.0010	0.00510	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050
Ethylbenzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050
Methyl t-butyl ether (MTBE)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050
Styrene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050
Toluene	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	-	<0.00045
ortho-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050
meta- & para-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050
Xylene	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	-	<0.00075
4-Bromofluorobenzene (SS)	97.7	89.8	92.8	97.0	96.1	98.9	90.3	99.3	93.9	94.3	98.7	95.8	91.6	-	95.9
1,4-Difluorobenzene (SS)	102	101	104	101	100.0	101	101	97.6	102	101	102	102	102	-	101
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS02	WQS05	WQS05	WQS08	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS05	WQS08	WQS09	WQS09	WQS11-US
Date	30-May-2018	30-May-2018	30-May-2018	30-May-2018	30-May-2018	30-May-2018	30-May-2018	30-May-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018
Time	10:00:00 AM	12:50:00 PM	2:10:00 PM	1:37:00 PM	12:00:00 PM	2:35:00 PM	3:20:00 PM	11:20:00 AM	3:15:00 PM	10:29:00 AM	11:13:00 AM	9:48:00 AM	12:00:00 AM	11:53:00 AM	12:43:00 PM
QAQC	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2104191-1	L2104191-2	L2104191-8	L2104191-3	L2104191-4	L2104191-5	L2104191-6	L2104191-7	L2107408-1	L2107408-2	L2107408-3	L2107408-4	L2107408-8	L2107408-5	L2107408-6
<i>In Situ</i>															
Temperature (°C)	2.80	4.90	6.80	6.80	5.20	6.10	7.40	7.00	4.60	3.60	5.00	5.10	5.60	5.60	7.80
pH	7.81	7.89	7.88	7.88	7.81	7.94	7.69	8.19	7.56	8.06	8.01	7.78	7.90	7.90	7.92
Conductivity (µS/cm)	101	103	112	112	60.0	66.8	53.2	53.9	106	108	118	63.4	70.7	70.7	55.5
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	20.2	22.5	22.8	23.6	18.9	15.5	16.9	16.7	20.3	22.8	23.3	17.7	17.7	17.4	17.1
Conductivity (µS/cm)	104	107	112	117	61.5	69.4	54.3	52.1	107	109	118	64.4	71.3	72.8	53.1
Hardness (as CaCO ₃)	48.9	51.3	52.6	53.5	28.1	31.2	25.8	26.4	55.2	55.6	57.5	30.4	33.4	33.8	25.7
pH	8.04	8.09	8.02	8.06	8.02	7.92	7.83	7.61	8.05	8.03	8.01	7.79	7.82	7.81	7.59
Total Suspended Solids	16.7	14.3	14.5	13.1	15.7	14.1	42.1	44.3	5.90	6.70	35.1	8.70	9.50	8.90	22.5
Total Dissolved Solids	71.0	72.0	85.0	84.0	53.0	58.0	47.0	45.0	73.0	74.0	81.0	50.0	54.0	54.0	42.0
Turbidity (NTU)	12.9	15.7	13.7	13.9	9.85	8.06	32.3	33.3	6.06	8.26	12.3	6.47	6.85	5.95	17.1
Acidity (as CaCO ₃)	1.30	1.20	1.50	1.20	1.50	1.70	1.70	2.00	1.30	1.30	1.40	1.70	1.70	1.60	1.80
Alkalinity, Total (as CaCO ₃)	54.1	59.0	53.6	53.4	31.1	33.4	26.1	26.3	58.8	60.3	53.4	31.7	34.6	34.1	26.0
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0280	0.0300	0.0320	0.0330	0.0260	0.0270	0.0250	0.0250	0.0290	0.0290	0.0330	0.0260	0.0270	0.0270	0.0260
Sulphate (SO ₄)	0.910	0.940	9.08	9.21	2.84	3.79	3.58	3.64	1.19	1.18	10.3	3.13	4.15	4.15	3.83
Nutrients															
Total Nitrogen	0.110	0.109	0.132	0.136	0.0950	0.160	0.105	0.205	0.0990	0.0910	0.122	0.0810	0.0950	0.0970	0.124
Total Kjeldahl Nitrogen	0.0880	0.110	0.135	0.126	0.0790	0.0860	0.135	0.125	0.0990	0.116	0.111	0.0640	0.0960	0.108	0.123
Ammonia as N	<0.0050	<0.0050	0.00730	<0.0050	<0.0050	0.00880	0.00910	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	<0.0050	<0.0050	0.0138	0.0160	0.0161	0.0154	0.0227	0.0239	<0.0050	<0.0050	0.0142	0.0128	0.0118	0.0111	0.0196
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.0116	0.0186	0.0185	0.0184	0.0188	0.0180	0.0527	0.0554	0.0126	0.00960	0.0112	0.0105	0.0108	0.00890	0.0261
Dissolved Orthophosphate (as P)	0.00120	0.00180	0.00140	0.00110	0.00150	0.00130	0.00260	0.00260	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00120
Carbon															
Total Organic Carbon	4.89	5.41	5.56	5.70	3.89	4.18	4.54	4.34	4.97	4.99	5.40	3.70	3.65	3.90	3.97
Dissolved Organic Carbon	4.37	5.13	5.27	5.24	3.77	3.86	3.79	3.52	4.55	5.32	5.06	3.48	3.45	3.68	3.62
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.438	0.588	0.498	0.589	0.529	0.396	1.76	1.26	0.262	0.327	0.435	0.333	0.188	0.402	0.444
Antimony (Sb)	0.000120	0.000160	<0.00010	0.000120	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000650	0.000700	0.000570	0.000690	0.000360	0.000360	0.000870	0.000700	0.000500	0.000530	0.000500	0.000280	0.000290	0.000350	0.000440
Barium (Ba)	0.0262	0.0287	0.0455	0.0454	0.0283	0.0297	0.0391	0.0316	0.0279	0.0282	0.0513	0.0324	0.0321	0.0362	0.0293
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000068	0.0000060	0.0000129	0.0000170	0.0000127	0.0000138	0.0000234	0.0000242	<0.000050	<0.000050	0.0000134	0.0000100	0.0000108	0.0000126	0.0000135
Calcium (Ca)	14.9	15.1	16.1	16.0	8.69	9.71	8.22	8.03	16.8	16.8	17.9	10.1	11.0	11.2	8.69
Chromium (Cr)	0.000780	0.00107	0.000680	0.000830	0.000440	0.000530	0.00158	0.00135	0.000510	0.000550	0.000610	0.000350	0.000210	0.000430	0.000390
Cobalt (Co)	0.000250	0.000370	0.000360	0.000390	0.000280	0.000220	0.000910	0.000700	0.000130	0.000170	0.000280	0.000170	0.000130	0.000230	0.000260
Copper (Cu)	0.00233	0.00267	0.00330	0.00351	0.00213	0.00230	0.00345	0.00304	<0.0020	<0.0025	<0.0035	<0.0025	<0.0020	<0.0025	<0.0025
Iron (Fe)	0.337	0.570	0.561	0.684	0.458	0.399	1.72	1.42	0.182	0.252	0.430	0.313	0.197	0.400	0.440
Lead (Pb)	0.000103	0.000160	0.000172	0.000203	0.000300	0.000242	0.000512	0.000505	0.0000520	0.0000730	0.000131	0.000177	0.000139	0.000203	0.000246
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	2.91	3.07	3.30	3.37	1.58	1.76	1.82	1.48	3.27	3.29	3.82	1.84	1.92	2.09	1.49

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS01	WQS02	WQS05	WQS05	WQS08	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS05	WQS08	WQS09	WQS09	WQS11-US
Date	30-May-2018	30-May-2018	30-May-2018	30-May-2018	30-May-2018	30-May-2018	30-May-2018	30-May-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018	5-Jun-2018
Time	10:00:00 AM	12:50:00 PM	2:10:00 PM	1:37:00 PM	12:00:00 PM	2:35:00 PM	3:20:00 PM	11:20:00 AM	3:15:00 PM	10:29:00 AM	11:13:00 AM	9:48:00 AM	12:00:00 AM	11:53:00 AM	12:43:00 PM
QAQC	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2104191-1	L2104191-2	L2104191-8	L2104191-3	L2104191-4	L2104191-5	L2104191-6	L2104191-7	L2107408-1	L2107408-2	L2107408-3	L2107408-4	L2107408-8	L2107408-5	L2107408-6
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	82.5	80.8	89.5	86.6	92.2	84.6	86.7	81.3	80.4	87.1	79.1	90.9	88.8	78.8	89.3
Chrysene d12	67.6	64.4	62.5	69.5	73.5	69.8	69.5	63.5	64.7	72.2	65.9	77.2	74.6	65.2	76.1
Naphthalene d8	92.3	93.7	95.9	96.3	106	98.3	104	92.5	89.2	98.6	90.6	104	103	90.1	103
Phenanthrene d10	94.8	94.4	94.4	95.6	102	94.2	102	90.0	87.5	96.6	89.4	102	101	88.0	98.8
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS12	WQS01	WQS02	WQS05	WQS08	WQS09	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS03	WQS04B	WQS04B	WQS05
Date	5-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018
Time	1:10:00 PM	10:10:00 AM	12:50:00 PM	1:30:00 PM	12:00:00 PM	2:00:00 PM	2:00:00 PM	2:40:00 PM	3:15:00 PM	11:00:00 AM	1:00:00 PM	10:30:00 AM	12:00:00 AM	1:35:00 PM	2:05:00 PM
QAQC	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2107408-7	L2112729-1	L2112729-2	L2112729-3	L2112729-4	L2112729-8	L2112729-5	L2112729-6	L2112729-7	L2116657-13	L2116657-12	L2116657-8	L2116657-17	L2116657-11	L2116657-14
<i>In Situ</i>															
Temperature (°C)	8.40	4.70	6.80	9.50	8.00	8.60	8.60	9.50	9.90	6.80	8.90	9.00	10.80	10.80	11.00
pH	7.70	7.92	8.07	7.95	8.04	8.06	8.06	7.98	7.85	8.41	8.07	8.75	7.90	7.90	7.78
Conductivity (µS/cm)	57.4	101	104	115	58.9	65.5	65.5	54.4	55.2	79.0	83.5	140	89.0	89.0	94.8
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	16.0	15.3	16.4	15.8	13.2	13.0	14.1	14.5	13.6	10.1	10.9	49.9	12.8	12.1	8.60
Conductivity (µS/cm)	56.2	111	115	127	65.3	72.4	72.7	60.2	63.2	84.0	88.1	148	95.0	93.6	102
Hardness (as CaCO ₃)	25.9	54.0	55.2	60.3	30.7	33.3	33.7	28.1	28.1	44.6	48.3	86.6	51.9	51.4	52.0
pH	7.71	8.11	8.02	8.06	7.84	7.88	7.88	7.76	7.75	7.91	7.93	8.15	7.97	7.96	7.83
Total Suspended Solids	23.9	3.70	5.90	6.70	5.30	7.50	5.50	11.7	11.9	12.0	13.6	<3.0	10.6	10.8	19.6
Total Dissolved Solids	50.0	71.0	76.0	85.0	44.0	57.0	50.0	45.0	50.0	60.0	69.0	110	66.0	71.0	70.0
Turbidity (NTU)	6.79	4.22	7.89	8.06	4.38	5.33	4.76	10.6	10.4	12.5	12.3	2.16	15.0	15.4	15.2
Acidity (as CaCO ₃)	1.90	1.40	1.70	1.40	1.60	1.60	1.60	1.70	1.80	2.60	2.50	<1.0	2.40	2.70	2.70
Alkalinity, Total (as CaCO ₃)	25.9	59.6	61.0	52.4	30.5	33.3	33.4	26.5	27.6	44.7	47.2	84.2	50.8	51.2	37.6
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0250	0.0290	0.0300	0.0320	0.0260	0.0270	0.0260	0.0240	0.0240	0.0210	0.0230	0.0420	0.0260	0.0260	0.0290
Sulphate (SO ₄)	3.91	1.36	1.40	11.9	3.20	4.21	4.22	3.98	4.05	1.58	1.59	0.670	1.79	1.79	13.7
Nutrients															
Total Nitrogen	0.108	0.0580	0.111	0.0820	0.0470	0.0710	0.0590	0.0910	0.0920	0.0780	0.0620	0.199	0.0600	0.0630	0.0810
Total Kjeldahl Nitrogen	0.113	0.0630	0.0830	0.0740	0.0610	0.0640	0.0530	0.0950	0.0880	0.0610	0.0610	0.204	0.0720	0.0740	0.0660
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.00570	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0205	<0.0050	<0.0050	0.0105	0.00670	0.00770	0.00560	0.0205	0.0213	0.00990	<0.0050	<0.0050	<0.0050	<0.0050	0.0201
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.0239	0.00410	0.00900	0.00690	0.00810	0.00870	0.00920	0.0153	0.0168	0.0145	0.0122	0.00290	0.0139	0.0143	0.0176
Dissolved Orthophosphate (as P)	0.00120	0.00180	0.00140	<0.0010	0.00120	0.00190	0.00130	0.00270	0.00270	0.00160	<0.0010	<0.0010	0.00140	<0.0010	<0.0010
Carbon															
Total Organic Carbon	3.76	3.34	3.58	3.96	2.63	2.66	2.69	3.10	2.93	2.09	2.31	9.89	2.53	2.60	2.09
Dissolved Organic Carbon	3.41	3.19	3.53	3.76	2.56	2.64	2.72	3.12	3.12	1.93	2.02	9.88	2.41	2.38	1.80
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.443	0.167	0.306	0.306	0.202	0.183	0.208	0.475	0.466	0.387	0.403	0.116	0.430	0.456	0.272
Antimony (Sb)	<0.00010	0.000110	0.000140	0.000140	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000220	0.000210	<0.00010	0.000210	0.000200	0.000190
Arsenic (As)	0.000400	0.000520	0.000560	0.000440	0.000300	0.000290	0.000280	0.000410	0.000400	0.000720	0.000640	0.000750	0.000660	0.000650	0.000460
Barium (Ba)	0.0297	0.0244	0.0261	0.0462	0.0272	0.0290	0.0298	0.0258	0.0260	0.0205	0.0227	0.0715	0.0249	0.0250	0.0376
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0120	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000158	<0.0000050	<0.0000050	0.0000082	0.0000071	0.0000081	0.0000097	0.0000095	0.0000067	0.0000054	<0.0000050	0.0000081	0.0000074	0.0000053	0.0000276
Calcium (Ca)	8.90	16.5		17.0	9.06	9.89	9.86	8.31	8.56	13.2	13.7	17.0	14.5	14.5	15.0
Chromium (Cr)	0.000500	0.000410	0.000560	0.000490	0.000220	0.000220	0.000250	0.000470	0.000460	0.000540	0.000610	0.000280	0.000620	0.000630	0.000310
Cobalt (Co)	0.000280	<0.00010	0.000180	0.000180	0.000110	0.000110	0.000130	0.000250	0.000240	0.000230	0.000240	<0.00010	0.000260	0.000280	0.000280
Copper (Cu)	<0.0025	0.00199	0.00179	0.00245	0.00131	0.00143	0.00148	0.00163	0.00165	<0.0020	<0.0020	<0.0020	<0.0020	<0.0025	<0.0035
Iron (Fe)	0.454	0.126	0.278	0.333	0.212	0.206	0.228	0.516	0.493	0.251	0.292	0.0880	0.363	0.379	0.289
Lead (Pb)	0.000259	<0.000050	0.0000770	0.0000980	0.000118	0.000107	0.000118	0.000176	0.000175	0.0000890	0.000113	<0.000050	0.000123	0.000131	0.000158
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.51	2.96	3.03	3.37	1.54	1.73	1.72	1.43	1.46	2.29	2.50	8.81	2.76	2.75	2.61

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS12	WQS01	WQS02	WQS05	WQS08	WQS09	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS03	WQS04B	WQS04B	WQS05
Date	5-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018
Time	1:10:00 PM	10:10:00 AM	12:50:00 PM	1:30:00 PM	12:00:00 PM	2:00:00 PM	2:00:00 PM	2:40:00 PM	3:15:00 PM	11:00:00 AM	1:00:00 PM	10:30:00 AM	12:00:00 AM	1:35:00 PM	2:05:00 PM
QA/QC	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2107408-7	L2112729-1	L2112729-2	L2112729-3	L2112729-4	L2112729-8	L2112729-5	L2112729-6	L2112729-7	L2116657-13	L2116657-12	L2116657-8	L2116657-17	L2116657-11	L2116657-14
Total Metals (cont'd)															
Manganese (Mn)	0.0360	0.00526	0.00968	0.0125	0.0140	0.0137	0.0144	0.0260	0.0238	0.0163	0.0157	0.00179	0.0183	0.0194	0.0221
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000284	0.0000860	0.0000870	0.000316	0.000404	0.000390	0.000409	0.000324	0.000336	0.0000730	0.0000710	0.000143	0.0000800	0.0000900	0.000331
Nickel (Ni)	0.000690	<0.00050	<0.00050	0.000510	<0.00050	<0.00050	<0.00050	0.000590	0.000540	<0.00050	<0.00050	<0.00050	0.000570	0.000630	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.395	0.174	0.194	0.329	0.211	0.221	0.225	0.363	0.369	0.176	0.194	0.299	0.230	0.226	0.296
Selenium (Se)	<0.000050	<0.000050	<0.000050	0.0000990	0.0000530	0.0000510	0.0000620	<0.000050	<0.000050	<0.000050	0.0000690	0.0000570	<0.000050	<0.000050	0.0000710
Silicon (Si)	3.14	3.86	4.00	3.51	2.94	2.93	2.97	3.13	3.10	3.14	3.22	3.38	3.36	3.36	2.72
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	2.40	2.40	2.20	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.00	4.30	2.20	2.10	<2.0
Strontium (Sr)	0.0409	0.0797	0.0763	0.0706	0.0480	0.0494	0.0497	0.0384	0.0393	0.0596	0.0634	0.114	0.0664	0.0663	0.0575
Sulphur (S)	1.26	<0.50	<0.50	3.27	<0.50	0.710	0.700	0.560	<0.50	0.710	0.750	<0.50	0.850	0.690	4.73
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.01000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0130	0.0130	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000450	0.0000530	0.0000580	0.0000500	0.0000360	0.0000350	0.0000370	0.0000370	0.0000350	0.0000360	0.0000380	0.0000330	0.0000390	0.0000360	0.0000530
Vanadium (V)	0.00138	0.00124	0.00159	0.00125	0.00101	0.00159	0.00105	0.00155	0.00164	0.00165	0.00156	0.00165	0.00165	0.00168	0.00101
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.0528	0.0196	0.0254	0.0258	0.0289	0.0264	0.0309	0.0376	0.0342	0.0187	0.0294	0.0842	0.0281	0.0300	0.0395
Antimony (Sb)	<0.00010	0.000110	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000200	0.000190	<0.00010	0.000200	0.000180	0.000150
Arsenic (As)	0.000210	0.000410	0.000420	0.000290	0.000190	0.000200	0.000200	0.000200	0.000200	0.000480	0.000510	0.000710	0.000470	0.000460	0.000320
Barium (Ba)	0.0195	0.0232	0.0242	0.0457	0.0259	0.0279	0.0296	0.0219	0.0219	0.0183	0.0213	0.0812	0.0234	0.0236	0.0374
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0110	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000063	<0.0000050	<0.0000050	0.0000064	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000069	<0.0000050	<0.0000050	0.0000188
Calcium (Ca)	8.24	16.7	17.0	18.3	9.76	10.5	10.5	9.00	9.01	14.0	15.0	18.1	15.9	15.7	16.1
Chromium (Cr)	<0.00010	0.000260	0.000260	0.000150	0.0001	0.000110	0.000110	0.000140	<0.00010	0.000180	0.000170	0.000250	0.000140	0.000210	0.000110
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00109	0.00112	0.00127	0.00178	0.000900	0.000950	0.00105	0.000930	0.000890	0.000900	0.00109	0.00178	0.00125	0.00124	0.00216
Iron (Fe)	0.0610	<0.030	<0.030	<0.030	0.0490	0.0410	0.0420	0.0460	0.0430	<0.030	<0.030	0.0630	<0.030	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00140	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.29	2.95	3.08	3.52	1.54	1.70	1.84	1.37	1.37	2.36	2.64	10.00	2.96	2.96	2.88
Manganese (Mn)	0.00741	0.000570	0.00149	0.00154	0.00101	0.000590	0.000950	0.000840	0.00101	0.00153	0.00182	0.000800	0.000840	0.00270	0.00445
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000355	0.0000750	0.0000820	0.000317	0.000451	0.000435	0.000442	0.000368	0.000360	0.0000580	0.0000740	0.000147	0.0000910	0.0000900	0.000385
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.331	0.152	0.163	0.300	0.202	0.210	0.231	0.332	0.325	0.148	0.167	0.325	0.217	0.187	0.309
Selenium (Se)	<0.000050	<0.000050	<0.000050	<0.000050	0.0000500	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000760
Silicon (Si)	2.41	3.37	3.49	2.99	2.56	2.54	2.58	2.34	2.29	2.83	3.08	3.66	3.16	3.20	2.72
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	2.50	2.50	2.30	<2.0	<2.0	<2.0	<2.0	<2.0	2.10	2.20	4.70	2.50	2.40	<2.0
Strontium (Sr)	0.0399	0.0800	0.0815	0.0740	0.0499	0.0522	0.0519	0.0401	0.0400	0.0626	0.0675	0.123	0.0727	0.0698	0.0603
Sulphur (S)	1.16	0.530	0.520	3.65	0.940	1.21	1.27	1.26	1.24	<0.50	<0.50	<0.50	<0.50	<0.50	4.50
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000270	0.0000540	0.0000570	0.0000510	0.0000330	0.0000320	0.0000330	0.0000250	0.0000250	0.0000300	0.0000320	0.0000310	0.0000380	0.0000350	0.0000480
Vanadium (V)	<0.00050	0.000880	0.000870	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000980	0.000990	0.000610	0.000940	0.000940	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00001

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS12	WQS01	WQS02	WQS05	WQS08	WQS09	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS03	WQS04B	WQS04B	WQS05
Date	5-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018	19-Jun-2018
Time	1:10:00 PM	10:10:00 AM	12:50:00 PM	1:30:00 PM	12:00:00 PM	2:00:00 PM	2:00:00 PM	2:40:00 PM	3:15:00 PM	11:00:00 AM	1:00:00 PM	10:30:00 AM	12:00:00 AM	1:35:00 PM	2:05:00 PM
QAQC	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2107408-7	L2112729-1	L2112729-2	L2112729-3	L2112729-4	L2112729-8	L2112729-5	L2112729-6	L2112729-7	L2116657-13	L2116657-12	L2116657-8	L2116657-17	L2116657-11	L2116657-14
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000080	<0.000080	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.000070	<0.000030	<0.0000050	<0.0000050	<0.0000050	<0.000011	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000080	<0.000080	<0.000010	<0.000010	<0.000015	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000081	<0.000081	<0.000015	<0.000015	<0.000018	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000060	<0.0000050	<0.000020	<0.000020	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000080	<0.000080	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000030	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000080	<0.000080	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	83.1	90.1	81.0	112	93.2	96.9	96.1	98.0	98.0	88.8	83.5	91.0	82.5	96.2	91.3
Chrysene d12	71.2	69.3	60.5	61.6	64.8	67.0	67.0	65.9	63.7	70.6	67.1	73.8	65.5	77.6	74.6
Naphthalene d8	94.5	87.2	80.3	104	86.0	90.0	87.9	88.3	87.7	96.9	91.6	105	88.8	104	101
Phenanthrene d10	93.5	97.0	87.7	120	102	105	104	106	104	99.1	93.9	106	91.2	109	103
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00140	<0.0010	<0.0010	<0.0010	0.00210	<0.0010	<0.0010	0.00110
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS08	WQS09	WQS10	WQS03-DS	WQS06	WQS06-US	WQS06-US	WQS11	WQS11-US	WQS12	WQS01	WQS03	WQS04B	WQS04B	WQS05
Date	19-Jun-2018	19-Jun-2018	19-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018
Time	12:15:00 PM	2:45:00 PM	3:30:00 PM	11:10:00 AM	9:10:00 AM	12:00:00 AM	10:00:00 AM	10:00:00 AM	12:30:00 PM	1:20:00 PM	11:45:00 AM	12:15:00 PM	10:30:00 AM	2:12:00 PM	2:40:00 PM
QAQC	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2116657-10	L2116657-9	L2116657-7	L2116657-1	L2116657-5	L2116657-18	L2116657-2	L2116657-6	L2116657-4	L2116657-3	L2136642-1	L2136642-3	L2136642-18	L2136642-5	L2136642-6
<i>In Situ</i>															
Temperature (°C)	8.40	9.70	10.30	10.80	6.90	6.90	6.90	-	13.00	14.20	9.00	9.10	13.90	13.90	13.80
pH	7.42	7.36	7.25	7.96	7.81	8.07	8.07	-	7.43	7.12	7.69	8.20	8.20	8.20	8.25
Conductivity (µS/cm)	43.4	50.2	49.0	184	63.7	93.9	93.9	-	48.7	51.9	76.4	150	103	103	104
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	15.5	12.9	13.7	56.5	5.70	5.30	5.30	11.3	10.3	10.6	<5.0	27.0	8.40	8.30	<5.0
Conductivity (µS/cm)	45.1	54.1	51.2	199	104	99.7	101	51.6	51.7	53.3	123	240	143	147	147
Hardness (as CaCO ₃)	22.8	27.3	26.3	107	50.2	48.5	48.3	26.3	25.8	26.5	59.6	127	69.5	69.4	66.3
pH	7.56	7.61	7.61	8.14	7.68	7.67	7.65	7.64	7.61	7.62	8.29	8.42	8.14	8.31	8.20
Total Suspended Solids	45.0	40.0	44.8	6.20	14.6	7.80	9.80	25.2	19.8	23.8	<3.0	<3.0	12.6	<3.0	<3.0
Total Dissolved Solids	38.0	45.0	52.0	147	73.0	69.0	72.0	43.0	47.0	46.0	85.0	154	87.0	93.0	100.0
Turbidity (NTU)	33.2	27.2	37.3	6.74	9.79	7.09	6.55	20.1	19.7	22.0	1.48	0.730	2.56	1.72	1.94
Acidity (as CaCO ₃)	2.70	2.50	1.20	1.50	1.40	2.70	2.20	1.20	1.10	1.30	<1.0	<1.0	1.10	<1.0	1.20
Alkalinity, Total (as CaCO ₃)	22.0	24.4	24.0	84.0	27.7	25.9	25.0	24.1	23.2	24.0	80.4	130	74.7	73.4	42.4
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0210	0.0220	0.0220	0.0480	0.0310	0.0300	0.0290	0.0210	0.0200	0.0200	0.0240	0.0540	0.0300	0.0300	0.0360
Sulphate (SO ₄)	2.94	4.58	4.03	20.4	23.1	22.6	22.3	3.46	3.44	3.53	1.79	1.13	2.56	2.55	28.6
Nutrients															
Total Nitrogen	0.107	0.0620	0.0940	0.272	0.0930	0.0680	0.0610	0.106	0.109	0.0920	<0.030	0.144	<0.030	0.0340	0.0400
Total Kjeldahl Nitrogen	0.0950	0.0770	0.118	0.279	0.0840	0.0520	<0.050	0.110	0.0760	0.1000	<0.050	0.138	<0.050	0.0550	<0.050
Ammonia as N	<0.0050	<0.0050	<0.0050	0.00530	<0.0050	<0.0050	<0.0050	0.00700	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	<0.0050	0.00510	<0.0050	0.00700	0.0389	0.0389	0.0410	0.0166	0.0125	0.0224	<0.0050	<0.0050	<0.0050	<0.0050	0.0193
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.0539	0.0470	0.0621	0.0106	0.0151	0.0108	0.00820	0.0368	0.0276	0.0409	0.00290	0.00280	0.00380	0.00460	0.00410
Dissolved Orthophosphate (as P)	0.00180	0.00150	0.00190	<0.0010	<0.0010	<0.0010	<0.0010	0.00140	0.00110	0.00140	0.00150	0.00120	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	2.71	2.22	2.44	13.0	1.57	1.32	1.91	3.03	2.65	2.60	1.31	6.86	1.70	2.02	1.38
Dissolved Organic Carbon	1.75	1.79	1.96	12.2	1.53	1.41	1.01	2.16	2.15	2.35	1.49	6.63	1.56	1.75	1.28
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	1.41	0.957	1.69	0.250	0.417	0.161	0.210	0.793	0.630	0.850	0.0521	0.0489	0.112	0.0783	0.118
Antimony (Sb)	<0.00010	<0.00010	<0.00010	0.000110	0.000120	0.000110	0.000140	<0.00010	<0.00010	<0.00010	0.000290	<0.00010	0.000240	0.000240	0.000130
Arsenic (As)	0.000550	0.000460	0.000690	0.000520	0.000470	0.000270	0.000350	0.000530	0.000480	0.000480	0.000690	0.000810	0.000540	0.000550	0.000320
Barium (Ba)	0.0407	0.0448	0.0446	0.0586	0.0488	0.0359	0.0394	0.0346	0.0323	0.0340	0.0262	0.103	0.0337	0.0335	0.0529
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	0.0120	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0150	0.0110	0.0120	<0.010
Cadmium (Cd)	0.0000408	0.0000360	0.0000339	0.0000073	0.0000570	0.0000534	0.0000729	0.0000176	0.0000153	0.0000141	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000316
Calcium (Ca)	7.74	8.50	8.62	20.2	15.1	14.8	15.0	8.36	8.43	8.45	18.4	25.1	20.8	21.0	20.3
Chromium (Cr)	0.000800	0.000610	0.00117	0.000430	0.000440	0.000180	0.000220	0.000800	0.000690	0.000790	0.000300	0.000150	0.000290	0.000260	0.000160
Cobalt (Co)	0.000710	0.000520	0.000880	0.000200	0.000460	0.000170	0.000320	0.000490	0.000370	0.000460	<0.00010	<0.00010	<0.00010	<0.00010	0.000110
Copper (Cu)	<0.0045	<0.0040	<0.0047	<0.0040	0.00603	<0.0040	0.00600	<0.0030	<0.0025	<0.0030	<0.0010	<0.0015	<0.0015	<0.0015	<0.0030
Iron (Fe)	1.18	0.811	1.49	0.275	0.535	0.124	0.198	0.844	0.669	0.851	<0.030	<0.030	<0.090	<0.070	0.203
Lead (Pb)	0.00155	0.00120	0.00141	0.0000790	0.000227	<0.000050	0.000129	0.000400	0.000282	0.000469	<0.000050	<0.000050	<0.000050	<0.000050	0.0000510
Lithium (Li)	<0.0010	<0.0010	0.00110	0.00140	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00170	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.54	1.55	1.76	10.00	2.48	2.07	2.03	1.32	1.22	1.38	3.20	13.9	4.03	4.09	3.46

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS08	WQS09	WQS10	WQS03-DS	WQS06	WQS06-US	WQS06-US	WQS11	WQS11-US	WQS12	WQS01	WQS03	WQS04B	WQS04B	WQS05
Date	19-Jun-2018	19-Jun-2018	19-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018
Time	12:15:00 PM	2:45:00 PM	3:30:00 PM	11:10:00 AM	9:10:00 AM	12:00:00 AM	10:00:00 AM	10:00:00 AM	10:00:00 AM	12:30:00 PM	1:20:00 PM	11:45:00 AM	12:15:00 PM	10:30:00 AM	2:12:00 PM
QAQC	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2116657-10	L2116657-9	L2116657-7	L2116657-1	L2116657-5	L2116657-18	L2116657-2	L2116657-6	L2116657-4	L2116657-3	L2136642-1	L2136642-3	L2136642-18	L2136642-5	L2136642-6
Total Metals (cont'd)															
Manganese (Mn)	0.0665	0.0532	0.0784	0.00665	0.0326	0.0121	0.0201	0.0459	0.0340	0.0426	0.00277	<0.00080	0.0101	0.00691	0.0103
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	0.0000051	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000447	0.000412	0.000483	0.000162	0.000512	0.000598	0.000556	0.000330	0.000335	0.000340	0.0000740	0.000235	0.000107	0.000111	0.000501
Nickel (Ni)	0.000840	0.000610	0.00124	0.00145	0.000870	<0.00050	0.000700	0.00109	0.000760	0.000890	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.423	0.357	0.497	0.625	0.387	0.324	0.331	0.379	0.364	0.394	0.149	0.337	0.230	0.227	0.370
Selenium (Se)	0.0000700	0.0000730	0.0000720	0.0000630	0.000130	0.000126	0.000116	<0.000050	<0.000050	0.0000580	<0.000050	<0.000050	<0.000050	<0.000050	0.0000680
Silicon (Si)	3.68	3.12	4.09	3.61	2.61	2.30	2.35	2.86	2.81	3.05	3.00	3.37	3.40	3.40	2.91
Silver (Ag)	0.0000120	0.0000110	0.0000120	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	<2.0	<2.0	7.20	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.70	6.80	3.10	3.10	2.10
Strontium (Sr)	0.0413	0.0417	0.0442	0.112	0.0495	0.0466	0.0461	0.0351	0.0350	0.0366	0.0875	0.176	0.0976	0.0989	0.0746
Sulphur (S)	1.11	1.43	1.28	6.59	7.31	7.25	7.33	1.14	1.23	1.43	<0.50	<0.50	0.600	0.740	9.38
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.0380	0.0240	0.0440	<0.010	<0.010	<0.010	<0.010	0.0250	0.0200	0.0260	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000650	0.0000600	0.0000700	0.0000720	0.0000740	0.0000660	0.0000800	0.0000440	0.0000390	0.0000420	0.0000530	0.0000830	0.0000670	0.0000650	0.0000540
Vanadium (V)	0.00299	0.00219	0.00367	0.000880	0.00113	<0.00050	0.000560	0.00230	0.00184	0.00223	0.00119	0.000580	0.00102	0.001000	0.000530
Zinc (Zn)	0.00620	0.00500	0.00770	<0.0030	0.00610	0.00430	0.00670	0.00410	<0.0030	0.00390	<0.0030	<0.0030	<0.0030	<0.0030	0.00300
Dissolved Metals															
Aluminum (Al)	0.0877	0.0721	0.0935	0.0659	0.0469	0.128	0.0535	0.0440	0.0466	0.0553	0.00720	0.0331	0.0101	0.0109	0.0248
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000260	<0.00010	0.000230	0.000230	0.000120
Arsenic (As)	0.000180	0.000190	0.000170	0.000410	0.000190	0.000250	0.000190	0.000210	0.000210	0.000200	0.000610	0.000780	0.000400	0.000430	0.000200
Barium (Ba)	0.0236	0.0247	0.0238	0.0655	0.0443	0.0436	0.0394	0.0239	0.0242	0.0243	0.0271	0.112	0.0327	0.0338	0.0542
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	0.01000	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0160	0.0110	0.0120	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	0.0000051	0.0000060	0.0000363	0.0000563	0.0000550	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000079	<0.0000050	<0.0000050	0.0000331
Calcium (Ca)	7.28	8.80	8.44	22.5	15.7	15.5	15.6	8.54	8.39	8.63	18.5	26.0	21.1	20.9	20.5
Chromium (Cr)	<0.00010	<0.00010	<0.00010	0.000230	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000250	0.000110	0.000180	0.000200	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000300	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00114	0.00116	0.00118	0.00269	0.00277	0.00597	0.00317	0.000910	0.000880	0.00103	0.000580	0.00109	0.000880	0.000900	0.00193
Iron (Fe)	0.0760	0.0610	0.0790	0.0580	<0.030	0.0980	<0.030	0.0480	0.0470	0.0550	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	0.000107	0.0001	0.000102	<0.000050	<0.000050	0.0000970	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.12	1.30	1.26	12.4	2.65	2.35	2.27	1.20	1.17	1.20	3.24	15.0	4.06	4.18	3.67
Manganese (Mn)	0.00220	0.00139	0.00339	0.000990	0.00744	0.00787	0.00836	0.00138	0.00131	0.00211	0.000670	0.000350	0.00449	0.00419	0.00593
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050					

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS08	WQS09	WQS10	WQS03-DS	WQS06	WQS06-US	WQS06-US	WQS11	WQS11-US	WQS12	WQS01	WQS03	WQS04B	WQS04B	WQS05
Date	19-Jun-2018	19-Jun-2018	19-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	20-Jun-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018
Time	12:15:00 PM	2:45:00 PM	3:30:00 PM	11:10:00 AM	9:10:00 AM	12:00:00 AM	10:00:00 AM	10:00:00 AM	12:30:00 PM	1:20:00 PM	11:45:00 AM	12:15:00 PM	10:30:00 AM	2:12:00 PM	2:40:00 PM
QAQC	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2116657-10	L2116657-9	L2116657-7	L2116657-1	L2116657-5	L2116657-18	L2116657-2	L2116657-6	L2116657-4	L2116657-3	L2136642-1	L2136642-3	L2136642-18	L2136642-5	L2136642-6
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	97.8	79.8	95.5	88.8	82.4	86.8	85.1	95.8	94.0	85.3	78.9	84.5	76.2	89.2	72.4
Chrysene d12	79.0	70.1	75.1	71.2	66.1	71.2	68.3	77.5	75.5	69.7	73.0	81.4	74.9	85.6	75.2
Naphthalene d8	109	81.5	103	94.2	90.1	96.0	90.4	105	101	93.1	91.4	95.2	90.3	88.6	90.4
Phenanthrene d10	109	88.4	106	99.6	92.3	98.4	94.7	108	105	95.7	92.8	96.5	90.9	94.4	93.1
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.00370	<0.0010	0.00250	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	0.00190	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32	-	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH	-	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH	-	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	94.1	97.2	95.9	94.9	98.4
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS08	WQS10	WQS11	WQS11-US	WQS12	WQS02	WQS03-DS	WQS06	WQS06-US	WQS09	WQS09	WQS01	WQS02	WQS03	WQS04B
Date	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018
Time	1:50:00 PM	3:25:00 PM	11:12:00 AM	9:53:00 AM	9:00:00 AM	9:47:00 AM	12:15:00 PM	11:05:00 AM	11:30:00 AM	2:12:00 PM	10:30:00 AM	9:34:00 AM	12:50:00 PM	8:50:00 AM	NA
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Field Duplicate
ALS Sample ID	L2136642-9	L2136642-11	L2136642-12	L2136642-13	L2136642-14	L2136642-2	L2136642-4	L2136642-7	L2136642-8	L2136642-17	L2136642-10	L2152033-1	L2152033-2	L2152033-3	L2152033-15
<i>In Situ</i>															
Temperature (°C)	11.80	13.50	16.70	14.70	13.90	9.30	10.90	10.10	10.10	10.60	10.60	7.80	11.40	8.60	13.00
pH	8.44	8.42	7.98	7.98	8.32	8.81	8.08	8.07	8.06	8.31	8.31	8.44	8.44	8.17	8.60
Conductivity (µS/cm)	39.7	48.8	42.7	40.5	42.5	85.8	180	96.8	92.4	46.3	46.3	104	127	216	145
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	8.80	8.50	<5.0	<5.0	<5.0	<5.0	26.9	<5.0	<5.0	7.50	8.00	<5.0	<5.0	11.7	5.50
Conductivity (µS/cm)	59.5	69.7	56.0	56.5	58.3	137	277	151	145	69.1	71.5	155	175	317	192
Hardness (as CaCO ₃)	27.6	31.5	24.4	24.6	25.7	65.6	126	66.7	62.5	32.7	31.8	80.5	88.2	167	98.8
pH	8.15	8.13	7.74	7.82	7.83	8.30	8.40	8.17	8.15	7.59	8.14	8.10	8.23	8.40	8.29
Total Suspended Solids	8.00	6.60	6.20	5.60	4.20	3.40	<3.0	3.20	<3.0	5.80	7.00	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	44.0	45.0	41.0	40.0	39.0	87.0	177	95.0	88.0	47.0	48.0	101	109	216	117
Turbidity (NTU)	5.71	6.88	2.99	2.57	2.69	1.60	1.84	1.60	1.04	6.44	5.74	0.940	0.680	0.370	0.570
Acidity (as CaCO ₃)	<1.0	<1.0	1.30	1.20	1.60	<1.0	<1.0	1.000	1.10	2.00	<1.0	1.50	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO ₃)	25.7	28.0	24.6	24.4	25.2	88.3	122	35.1	32.6	29.4	29.1	88.2	97.3	189	107
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	<0.020	0.0210	<0.020	<0.020	<0.020	0.0280	0.0590	0.0340	0.0330	0.0230	0.0220	0.0300	0.0340	0.0630	0.0360
Sulphate (SO ₄)	4.27	6.26	3.97	3.95	4.16	1.91	23.1	35.7	35.1	6.53	6.56	2.00	2.18	2.04	4.05
Nutrients															
Total Nitrogen	<0.030	<0.030	0.0490	0.0380	0.0490	<0.030	0.180	0.0400	0.199	<0.030	<0.030	0.0430	0.0440	0.118	0.0570
Total Kjeldahl Nitrogen	<0.050	<0.050	0.0510	<0.050	0.0550	<0.050	0.173	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0790	0.0660
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	<0.0050	<0.0050	0.0104	0.0133	0.0168	<0.0050	0.0139	0.0271	0.0263	<0.0050	<0.0050	0.00520	<0.0050	0.0434	<0.0050
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.0122	0.0122	0.00590	0.00490	0.00200	0.00310	0.00380	0.00560	<0.0020	0.0105	0.0125	0.00240	0.00260	0.00250	<0.0020
Dissolved Orthophosphate (as P)	0.00140	0.00140	0.00110	0.001000	0.00130	0.00120	0.00110	0.00730	<0.0010	0.00140	0.00140	<0.0010	<0.0010	0.00120	<0.0010
Carbon															
Total Organic Carbon	0.780	0.890	1.45	1.35	1.34	1.41	7.94	1.29	1.39	0.840	0.960	1.09	1.34	3.13	1.55
Dissolved Organic Carbon	0.790	0.800	1.57	1.28	1.37	1.53	7.74	1.16	1.16	0.810	0.860	0.980	1.34	3.06	1.64
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.197	0.216	0.135	0.121	0.122	0.0563	0.103	0.0970	0.0650	0.251	0.263	0.0302	0.0244	0.0243	0.0338
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000300	<0.00010	0.000110	0.000120	<0.00010	<0.00010	0.000220	0.000180	<0.00010	0.000170
Arsenic (As)	0.000250	0.000270	0.000300	0.000240	0.000260	0.000610	0.000420	0.000280	0.000290	0.000230	0.000240	0.000590	0.000440	0.000760	0.000410
Barium (Ba)	0.0340	0.0362	0.0256	0.0258	0.0256	0.0309	0.0666	0.0591	0.0580	0.0375	0.0386	0.0358	0.0397	0.142	0.0453
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	0.0120	0.0120	<0.010	<0.010	<0.010	<0.010	0.0150	0.0170	0.0180	0.0150
Cadmium (Cd)	0.0000143	0.0000141	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000361	0.0000498	0.0000141	0.0000156	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	9.06	10.4	8.61	8.52	8.45	26.9	20.6	20.1	10.5	10.7	10.7	23.0	25.5	33.9	28.0
Chromium (Cr)	0.000130	0.000120	0.000160	0.000170	0.000140	0.000300	0.000230	0.000120	0.0001	0.000160	0.000140	0.000320	0.000280	0.000140	0.000190
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	0.0001	0.0001	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	<0.0015	<0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030	<0.0040	<0.0015	<0.0015	0.000710	0.000850	0.000620	0.000940
Iron (Fe)	0.310	0.297	0.164	0.159	0.200	<0.050	<0.10	<0.090	<0.030	0.320	0.302	<0.030	<0.030	<0.030	0.0320
Lead (Pb)	0.000468	0.000400	0.0000620	0.0000640	0.0000840	<0.000050	<0.000050	<0.000050	<0.000050	0.000368	0.000387	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00180	<0.0010
Magnesium (Mg)	1.21	1.49	1.05	1.07	1.09	3.78	13.8	3.54	3.24	1.50	1.54	4.23	4.68	18.1	5.14

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS08	WQS10	WQS11	WQS11-US	WQS12	WQS02	WQS03-DS	WQS06	WQS06-US	WQS09	WQS09	WQS01	WQS02	WQS03	WQS04B
Date	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018
Time	1:50:00 PM	3:25:00 PM	11:12:00 AM	9:53:00 AM	9:00:00 AM	9:47:00 AM	12:15:00 PM	11:05:00 AM	11:30:00 AM	2:12:00 PM	10:30:00 AM	9:34:00 AM	12:50:00 PM	8:50:00 AM	NA
QA/QC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Field Duplicate
ALS Sample ID	L2136642-9	L2136642-11	L2136642-12	L2136642-13	L2136642-14	L2136642-2	L2136642-4	L2136642-7	L2136642-8	L2136642-17	L2136642-10	L2152033-1	L2152033-2	L2152033-3	L2152033-15
Total Metals (cont'd)															
Manganese (Mn)	0.0179	0.0190	0.00943	0.00943	0.00887	0.00510	0.00293	0.00752	0.00554	0.0173	0.0180	0.00125	0.00883	0.000650	0.00528
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000595	0.000577	0.000429	0.000399	0.000410	0.0000860	0.000229	0.000606	0.000615	0.000612	0.000593	0.0000890	0.000140	0.000389	0.000195
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.244	0.270	0.308	0.305	0.304	0.174	0.407	0.274	0.394	0.287	0.167	0.203	0.415	0.273	
Selenium (Se)	0.0000730	0.0000790	<0.000050	<0.000050	<0.000050	<0.000050	0.0000580	0.0000850	0.0000710	0.0000890	0.0000830	0.0000520	<0.000050	<0.000050	<0.000050
Silicon (Si)	2.01	2.22	2.07	2.00	1.98	3.19	3.68	2.90	2.85	2.39	2.39	3.14	3.51	3.37	3.53
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	<2.0	<2.0	<2.0	<2.0	3.00	10.2	<2.0	<2.0	<2.0	<2.0	3.50	3.90	10.4	3.90
Strontium (Sr)	0.0446	0.0487	0.0347	0.0348	0.0357	0.0959	0.153	0.0709	0.0658	0.0502	0.0501	0.117	0.124	0.243	0.133
Sulphur (S)	1.13	1.99	1.18	1.10	1.15	0.500	7.73	12.0	12.3	1.87	2.06	0.640	<0.50	0.790	0.960
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000380	0.0000380	0.0000280	0.0000260	0.0000260	0.0000660	0.000147	0.0000500	0.0000540	0.0000380	0.0000390	0.0000930	0.000123	0.000190	0.000140

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS08	WQS10	WQS11	WQS11-US	WQS12	WQS02	WQS03-DS	WQS06	WQS06-US	WQS09	WQS09	WQS01	WQS02	WQS03	WQS04B
Date	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	24-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	25-Jul-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018
Time	1:50:00 PM	3:25:00 PM	11:12:00 AM	9:53:00 AM	9:00:00 AM	9:47:00 AM	12:15:00 PM	11:05:00 AM	11:30:00 AM	2:12:00 PM	10:30:00 AM	9:34:00 AM	12:50:00 PM	8:50:00 AM	NA
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Field Duplicate
ALS Sample ID	L2136642-9	L2136642-11	L2136642-12	L2136642-13	L2136642-14	L2136642-2	L2136642-4	L2136642-7	L2136642-8	L2136642-17	L2136642-10	L2152033-1	L2152033-2	L2152033-3	L2152033-15
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	70.2	71.1	69.5	74.3	66.7	79.5	74.4	74.6	69.8	70.6	77.2	87.8	98.6	96.0	80.2
Chrysene d12	70.6	75.2	74.1	74.6	71.8	77.2	76.4	70.5	71.7	69.1	72.3	101	111	108	85.3
Naphthalene d8	90.0	89.1	87.7	92.8	85.2	91.9	89.8	90.3	88.0	85.5	97.8	77.2	104	94.6	99.3
Phenanthrene d10	86.7	89.5	88.4	91.5	85.5	95.2	91.1	88.7	88.7	87.6	94.9	99.6	110	108	100
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00130	0.00110	0.00190
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	-	-	-	-	-	-	-	-	-	-	-	<0.00045	<0.00045	<0.00045	<0.00045
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Xylene	-	-	-	-	-	-	-	-	-	-	-	<0.00075	<0.00075	<0.00075	<0.00075
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	94.3	98.3	94.5	74.8
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	99.6	95.8	98.3	81.9
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	95.0	88.8	109	85.3
EPH10-19	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	0.390	<0.25	<0.25	<0.25	<0.25	-	-	-	-
EPH19-32	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-
LEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	0.390	<0.25	<0.25	<0.25	<0.25	-	-	-	-
HEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-
2-Bromobenzotrifluoride	92.9	96.0	93.7	95.1	95.2	101	86.2	95.9	99.2	91.3	98.5	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS04B	WQS05	WQS06	WQS08	WQS09	WQS11	WQS12	WQS03-DS	WQS06-US	WQS06-US	WQS10	WQS11-US	WQS02	WQS06	WQS01
Date	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	24-Sep-2018	24-Sep-2018	25-Sep-2018
Time	1:37:00 PM	2:09:00 PM	2:30:00 PM	11:43:00 AM	11:10:00 AM	8:10:00 AM	10:40:00 AM	11:05:00 AM	NA	10:22:00 AM	9:42:00 AM	7:50:00 AM	12:50:00 PM	10:00:00 AM	2:30:00 PM
QAQC	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2152033-5	L2152033-6	L2152033-7	L2152033-9	L2152033-10	L2152033-12	L2152033-14	L2152033-4	L2152033-16	L2152033-8	L2152033-11	L2152033-13	L2172821-2	L2172821-8	L2172821-1
<i>In Situ</i>															
Temperature (°C)	13.00	14.00	14.70	9.90	9.80	14.70	14.70	9.90	10.40	10.40	10.40	14.40	6.00	6.20	6.30
pH	8.60	8.58	8.54	8.23	8.29	8.54	8.38	8.13	7.78	7.78	8.34	8.76	8.43	8.68	8.48
Conductivity (µS/cm)	145	136	136	40.3	46.3	41.8	43.3	228	112	112	45.8	41.2	117	116	107
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	5.70	<5.0	<5.0	7.00	5.80	<5.0	<5.0	21.3	<5.0	<5.0	6.00	<5.0	<5.0	<5.0	<5.0
Conductivity (µS/cm)	191	175	171	58.3	70.5	53.5	57.2	322	159	159	65.4	52.5	190	187	172
Hardness (as CaCO ₃)	97.2	81.4	79.7	26.7	34.2	24.0	26.7	156	74.6	75.5	30.9	24.8	85.3	79.4	77.8
pH	8.31	8.10	8.04	7.91	7.90	7.86	7.84	8.35	7.99	7.99	7.86	7.83	8.26	7.98	8.21
Total Suspended Solids	<3.0	3.20	<3.0	8.00	17.6	177	6.00	<3.0	<3.0	11.6	19.4	5.80	<3.0	<3.0	<3.0
Total Dissolved Solids	114	112	111	41.0	40.0	33.0	37.0	213	99.0	96.0	48.0	35.0	109	119	101
Turbidity (NTU)	0.590	0.740	0.860	8.49	12.6	11.6	3.76	1.62	0.540	3.00	13.0	1.80	0.280	0.750	0.600
Acidity (as CaCO ₃)	<1.0	1.20	1.30	1.30	1.40	1.50	1.60	<1.0	1.40	1.40	1.60	1.50	<1.0	1.40	1.20
Alkalinity, Total (as CaCO ₃)	107	57.3	47.6	27.0	31.9	24.7	26.4	157	43.5	42.8	29.8	24.5	100.0	51.8	90.4
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0370	0.0360	0.0370	0.0200	0.0220	<0.020	<0.020	0.0680	0.0310	0.0350	0.0220	<0.020	0.0290	0.0280	0.0270
Sulphate (SO ₄)	3.78	33.4	38.7	4.07	5.39	3.87	<0.30	30.1	36.6	37.1	4.87	3.85	3.13	40.1	3.03
Nutrients															
Total Nitrogen	0.0540	0.0740	0.0830	0.0380	0.0690	0.0590	0.0590	0.248	0.0630	0.0730	0.0670	0.0800	0.0590	0.103	0.0550
Total Kjeldahl Nitrogen	<0.050	<0.050	<0.050	<0.050	0.0550	<0.050	<0.050	0.149	<0.050	<0.050	0.0610	<0.050	<0.050	<0.050	<0.050
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.00970	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	<0.0050	0.0343	0.0429	<0.0050	<0.0050	<0.0050	0.00810	0.104	0.0457	0.0496	<0.0050	0.00620	<0.0050	0.0645	<0.0050
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00310	0.00670	0.00360	0.0147	0.0482	0.00570	0.00720	0.00400	<0.0020	<0.0020	0.0217	0.00300	<0.0020	0.00220	0.00240
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	1.72	1.18	1.14	0.570	0.990	1.02	0.960	5.93	0.660	0.830	0.820	1.18	1.43	1.09	1.69
Dissolved Organic Carbon	1.87	1.38	1.13	<0.50	<0.50	0.950	1.17	5.92	0.790	0.940	0.540	0.920	1.32	1.03	1.42
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0226	0.0678	0.0400	0.304	0.497	0.0753	0.113	0.0896	0.0251	0.0315	0.299	0.0675	0.0136	0.0301	0.0136
Antimony (Sb)	0.000170	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000170	<0.00010	0.000170
Arsenic (As)	0.000410	0.000210	0.000150	0.000120	0.000210	0.000160	0.000140	0.000360	0.000150	0.000180	0.000150	0.000170	0.000480	0.000240	0.000560
Barium (Ba)	0.0448	0.0694	0.0743	0.0367	0.0460	0.0228	0.0255	0.0708	0.0667	0.0682	0.0383	0.0229	0.0368	0.0661	0.0340
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0150	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0140	<0.010	<0.010	<0.010	<0.010	0.0180	<0.010	0.0160
Cadmium (Cd)	<0.000050	0.0000081	0.0000080	0.0000214	0.0000300	0.0000052	0.0000068	<0.000050	0.0000130	0.0000159	0.0000198	<0.000050	<0.000050	0.0000069	<0.000050
Calcium (Ca)	27.2	24.0	22.5	8.25	9.81	7.69	8.26	30.8	22.2	23.1	9.64	7.45	26.8	25.0	25.6
Chromium (Cr)	0.000190	0.000130	0.000130	0.000110	0.000290	<0.00010	<0.00010	0.000170	<0.00010	<0.00010	0.000130	<0.00010	0.000290	<0.00010	0.000300
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	0.000250	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	0.000120	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000990	0.00126	0.00122	0.00101	0.00158	0.000710	0.000780	0.00173	0.00116	0.00119	0.00108	0.000620	0.000730	0.000940	0.000750
Iron (Fe)	<0.030	0.0770	0.0450	0.300	0.623	0.0820	0.123	0.101	<0.030	<0.030	0.369	0.0640	<0.030	0.0410	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	0.000462	0.000778	<0.000050	0.0000990	<0.000050	<0.000050	<0.000050	0.000517	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00170	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	5.64	4.37	3.96	1.12	1.58	0.843	0.972	16.8	3.38	3.39	1.35	0.861	5.26	4.52	4.41

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS04B	WQS05	WQS06	WQS08	WQS09	WQS11	WQS12	WQS03-DS	WQS06-US	WQS06-US	WQS10	WQS11-US	WQS02	WQS06	WQS01
Date	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	24-Sep-2018	24-Sep-2018	25-Sep-2018
Time	1:37:00 PM	2:09:00 PM	2:30:00 PM	11:43:00 AM	11:10:00 AM	8:10:00 AM	10:40:00 AM	11:05:00 AM	NA	10:22:00 AM	9:42:00 AM	7:50:00 AM	12:50:00 PM	10:00:00 AM	2:30:00 PM
QAQC	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2152033-5	L2152033-6	L2152033-7	L2152033-9	L2152033-10	L2152033-12	L2152033-14	L2152033-4	L2152033-16	L2152033-8	L2152033-11	L2152033-13	L2172821-2	L2172821-8	L2172821-1
Total Metals (cont'd)															
Manganese (Mn)	0.00425	0.00654	0.00497	0.0186	0.0377	0.00685	0.0167	0.00264	0.00181	0.00197	0.0226	0.00898	0.00635	0.00460	0.000830
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000201	0.000576	0.000611	0.000607	0.000559	0.000445	0.000432	0.000276	0.000722	0.000685	0.000544	0.000413	0.000131	0.000504	0.000114
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00121	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.284	0.454	0.479	0.245	0.325	0.267	0.278	0.901	0.406	0.412	0.275	0.269	0.201	0.423	0.185
Selenium (Se)	0.0000530	0.0000660	0.0000730	0.0000890	0.000107	<0.000050	<0.000050	0.0000880	0.0000750	0.0000730	0.0000680	<0.000050	<0.000050	0.0000740	<0.000050
Silicon (Si)	3.63	3.12	2.90	1.97	2.60	1.65	1.85	3.56	2.82	2.80	2.23	1.67	3.27	2.67	3.22
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	4.40	2.80	2.60	<2.0	<2.0	<2.0	<2.0	13.4	2.00	<2.0	<2.0	<2.0	4.20	2.70	3.90
Strontium (Sr)	0.131	0.0925	0.0836	0.0440	0.0526	0.0352	0.0352	0.182	0.0734	0.0767	0.0472	0.0335	0.132	0.0862	0.119
Sulphur (S)	1.10	12.0	14.1	1.01	1.57	0.780	0.830	11.1	12.4	12.9	1.28	0.690	1.16	13.7	1.10
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000145	0.0000540	0.0000340	0.0000380	0.0000510	0.0000220	0.0000240	0.000253	0.0000350	0.0000330	0.0000370	0.0000230	0.000156	0.0000410	0.000145

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS04B	WQS05	WQS06	WQS08	WQS09	WQS11	WQS12	WQS03-DS	WQS06-US	WQS06-US	WQS10	WQS11-US	WQS02	WQS06	WQS01
Date	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	24-Sep-2018	24-Sep-2018	25-Sep-2018
Time	1:37:00 PM	2:09:00 PM	2:30:00 PM	11:43:00 AM	11:10:00 AM	8:10:00 AM	10:40:00 AM	11:05:00 AM	NA	10:22:00 AM	9:42:00 AM	7:50:00 AM	12:50:00 PM	10:00:00 AM	2:30:00 PM
QAQC	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2152033-5	L2152033-6	L2152033-7	L2152033-9	L2152033-10	L2152033-12	L2152033-14	L2152033-4	L2152033-16	L2152033-8	L2152033-11	L2152033-13	L2172821-2	L2172821-8	L2172821-1
Polycyclic Aromatic Hydrocarbons <i>(cont'd)</i>															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	91.1	88.2	86.5	82.3	84.3	86.1	81.9	91.0	83.8	82.4	81.6	83.8	84.7	87.7	85.5
Chrysene d12	79.3	79.2	82.2	81.4	84.8	92.6	84.8	106	74.2	82.4	83.3	95.0	88.8	82.7	88.7
Naphthalene d8	96.8	97.5	98.4	93.2	99.2	100	97.1	102	96.0	102	95.8	96.2	98.0	98.8	95.8
Phenanthrene d10	102	101	101	97.0	105	103	98.2	107	97.2	103	97.1	99.2	100	96.8	98.5
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.00650	0.00260	0.00110	0.00400	<0.0010	<0.0010	<0.0010	0.00130	0.00170	<0.0010	0.00150	0.00110	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-
Ethylbenzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-
Methyl t-butyl ether (MTBE)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-
Styrene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-
Toluene	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	-	-	-
ortho-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-
meta- & para-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-
Xylene	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	-	-	-
4-Bromofluorobenzene (SS)	101	91.0	95.7	94.1	91.9	93.1	76.4	95.9	76.2	95.2	94.0	75.0	-	-	-
1,4-Difluorobenzene (SS)	96.2	101	96.8	100	96.2	98.0	80.4	95.6	78.8	97.3	98.2	102	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-
VPH (C6-C10)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-
3,4-Dichlorotoluene (SS)	108	68.1	94.5	66.6	92.9	90.8	84.2	111	84.6	94.6	101	98.7	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	102	101	93.8
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS03	WQS09	WQS10	WQS11	WQS11	WQS12	WQS13	WQS14	WQS15	WQS03-DS	WQS04B	WQS05	WQS06-US	WQS08	WQS08
Date	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018
Time	1:50:00 PM	4:10:00 PM	3:40:00 PM	12:00:00 AM	10:25:00 AM	4:45:00 PM	11:15:00 AM	12:15:00 PM	12:50:00 PM	4:00:00 PM	2:45:00 PM	3:00:00 PM	3:30:00 PM	12:00:00 AM	2:15:00 PM
QAQC	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate
ALS Sample ID	L2172821-4	L2172821-10	L2172821-11	L2172821-20	L2172821-13	L2172821-14	L2172821-15	L2172821-16	L2172821-17	L2172821-5	L2172821-3	L2172821-6	L2172821-7	L2172821-21	L2172821-9
<i>In Situ</i>															
Temperature (°C)	5.10	9.20	9.90	9.90	9.90	11.60	6.20	4.70	5.60	6.60	8.80	9.10	8.10	8.80	8.80
pH	8.26	8.36	8.47	8.45	8.45	8.22	8.11	8.21	8.06	8.33	8.23	8.22	8.26	8.03	8.03
Conductivity (µS/cm)	200	77.2	76.9	31.4	31.4	51.4	104	92.6	111	217	102	127	113	62.6	62.6
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	13.1	5.50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	15.7	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (µS/cm)	331	109	113	59.8	59.8	68.8	167	155	180	342	208	187	170	91.9	93.5
Hardness (as CaCO ₃)	152	49.3	50.2	25.1	25.4	30.6	69.9	69.7	72.8	153	92.3	79.4	70.1	39.4	42.0
pH	8.47	7.95	7.96	7.72	7.66	7.72	7.88	8.12	7.58	8.43	8.26	8.05	7.94	7.92	7.91
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	169	68.0	72.0	44.0	45.0	47.0	109	95.0	119	181	118	116	103	65.0	64.0
Turbidity (NTU)	0.170	1.81	1.29	0.850	1.51	0.970	0.220	0.490	0.140	0.830	0.330	0.620	0.550	3.46	3.21
Acidity (as CaCO ₃)	<1.0	1.60	1.50	1.60	1.70	1.60	1.60	1.20	1.80	<1.0	<1.0	1.40	1.50	1.90	1.50
Alkalinity, Total (as CaCO ₃)	187	47.2	49.4	27.4	27.1	30.9	42.8	71.0	22.7	165	110	59.8	46.4	42.3	42.3
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0660	0.0280	0.0290	<0.020	<0.020	<0.020	0.0250	<0.020	0.0310	0.0590	0.0310	0.0290	0.0260	0.0290	0.0270
Sulphate (SO ₄)	2.35	8.96	8.99	3.59	3.63	4.41	37.8	11.1	59.1	28.2	4.79	34.6	37.2	6.67	6.54
Nutrients															
Total Nitrogen	0.130	0.0510	0.0780	0.0720	0.0700	0.0720	0.111	0.0680	0.106	0.146	0.0650	0.0950	0.101	0.0660	0.0570
Total Kjeldahl Nitrogen	0.103	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0510	0.117	<0.050	0.0530	<0.050	<0.050	<0.050
Ammonia as N	0.0113	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	<0.0050	0.00860	0.00860	0.0122	0.0127	0.0126	0.0648	0.0273	0.0767	0.0135	<0.0050	0.0429	0.0545	0.00520	<0.0050
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00440	0.00450	0.00330	0.00300	0.00570	0.00320	<0.0020	<0.0020	<0.0020	0.00240	<0.0020	0.00260	0.00300	0.00680	0.00730
Dissolved Orthophosphate (as P)	<0.0010	0.00170	0.00170	0.00180	0.00150	0.00130	<0.0010	<0.0010	<0.0010	0.00120	<0.0010	0.00120	0.00120	0.00120	0.00170
Carbon															
Total Organic Carbon	3.78	1.11	1.10	1.14	1.25	1.20	1.22	0.940	0.650	4.64	1.72	1.28	1.24	0.960	0.850
Dissolved Organic Carbon	3.61	0.950	1.14	1.22	1.28	1.15	1.22	0.850	0.560	4.53	1.66	1.29	1.07	0.810	0.870
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0183	0.0713	0.0495	0.0425	0.0415	0.0428	0.0162	0.0135	0.0332	0.0409	0.0148	0.0349	0.0271	0.115	0.104
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000110	0.000230	0.0001	<0.00010	0.000150	0.0001	0.0001	<0.00010	<0.00010
Arsenic (As)	0.000850	0.000260	0.000270	0.000240	0.000230	0.000210	0.000270	0.000460	0.000290	0.000410	0.000450	0.000260	0.000280	0.000270	0.000250
Barium (Ba)	0.121	0.0482	0.0464	0.0206	0.0223	0.0263	0.0643	0.0205	0.0140	0.0672	0.0415	0.0636	0.0692	0.0487	0.0440
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0210	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0110	0.0170	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000054	0.0000105	0.0000103	<0.0000050	<0.0000050	<0.0000050	0.0000164	0.0000099	0.000140	<0.0000050	<0.0000050	0.0000085	0.0000101	0.0000170	0.0000128
Calcium (Ca)	34.3	15.8	15.9	9.01	9.16	10.3	23.8	25.5	23.0	33.0	29.9	27.1	24.4	13.5	13.7
Chromium (Cr)	0.000140	<0.00010	0.000110	0.000150	<0.00010	<0.00010	<0.00010	0.000280	<0.00010	0.0001	0.000200	0.000110	<0.00010	0.000160	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000140	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000650	0.000700	0.000620	0.000720	0.000630	0.000600	0.00121	0.000690	0.00487	0.00115	0.000850	0.000960	0.00109	0.000830	0.000770
Iron (Fe)	<0.030	0.225	0.205	0.0510	0.0500	0.0690	<0.030	<0.030	<0.030	0.0340	<0.030	0.0460	<0.030	0.246	0.250
Lead (Pb)	<0.000050	0.000108	0.0000750	0.0000510	<0.000050	0.0000850	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000166	0.000153
Lithium (Li)	0.00170	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	18.8	2.41	2.52	0.976	1.000	1.23	3.50	3.42	2.73	17.9	6.03	4.58	3.86	2.01	1.92

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS03	WQS09	WQS10	WQS11	WQS11	WQS12	WQS13	WQS14	WQS15	WQS03-DS	WQS04B	WQS05	WQS06-US	WQS08	WQS08
Date	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018
Time	1:50:00 PM	4:10:00 PM	3:40:00 PM	12:00:00 AM	10:25:00 AM	4:45:00 PM	11:15:00 AM	12:15:00 PM	12:50:00 PM	4:00:00 PM	2:45:00 PM	3:00:00 PM	3:30:00 PM	12:00:00 AM	2:15:00 PM
QAQC	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate
ALS Sample ID	L2172821-4	L2172821-10	L2172821-11	L2172821-20	L2172821-13	L2172821-14	L2172821-15	L2172821-16	L2172821-17	L2172821-5	L2172821-3	L2172821-6	L2172821-7	L2172821-21	L2172821-9
Total Metals (cont'd)															
Manganese (Mn)	0.000430	0.0172	0.0179	0.00659	0.00674	0.00850	0.00107	0.000540	0.00615	0.00105	0.00319	0.00419	0.00228	0.0176	0.0164
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000374	0.000660	0.000657	0.000398	0.000405	0.000425	0.000553	0.0000710	0.000881	0.000268	0.000174	0.000471	0.000555	0.000693	0.000675
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000730	0.000810	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.423	0.344	0.336	0.282	0.286	0.303	0.187	0.379	0.441	0.794	0.280	0.413	0.407	0.330	0.315
Selenium (Se)	<0.000050	0.000101	0.0000900	<0.000050	<0.000050	<0.000050	0.0000970	0.000107	0.000153	0.0000600	<0.000050	0.0000650	0.0000740	0.000114	0.0000810
Silicon (Si)	3.19	2.68	2.66	1.69	1.67	1.83	2.60	2.20	2.91	3.14	3.35	2.82	2.70	2.62	2.45
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	11.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	13.3	4.50	3.00	2.20	<2.0	<2.0
Strontium (Sr)	0.225	0.0769	0.0797	0.0347	0.0350	0.0421	0.0793	0.0838	0.0785	0.180	0.134	0.0986	0.0803	0.0690	0.0699
Sulphur (S)	1.12	3.18	3.06	1.34	1.30	1.55	12.7	3.89	20.2	10.4	1.76	12.1	13.2	2.36	2.22
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000170	0.0000630	0.0000640	0.0000250	0.0000260	0.0000310	0.0000360	0.0000200	0.0000740	0.000256	0.000168	0.0000580	0.0000380	0.0000620	0.0000

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS03	WQS09	WQS10	WQS11	WQS11	WQS12	WQS13	WQS14	WQS15	WQS03-DS	WQS04B	WQS05	WQS06-US	WQS08	WQS08
Date	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	25-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018
Time	1:50:00 PM	4:10:00 PM	3:40:00 PM	12:00:00 AM	10:25:00 AM	4:45:00 PM	11:15:00 AM	12:15:00 PM	12:50:00 PM	4:00:00 PM	2:45:00 PM	3:00:00 PM	3:30:00 PM	12:00:00 AM	2:15:00 PM
QAQC	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate
ALS Sample ID	L2172821-4	L2172821-10	L2172821-11	L2172821-20	L2172821-13	L2172821-14	L2172821-15	L2172821-16	L2172821-17	L2172821-5	L2172821-3	L2172821-6	L2172821-7	L2172821-21	L2172821-9
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	79.1	78.6	77.7	82.6	76.8	76.5	71.3	77.6	71.4	83.5	82.5	87.0	90.3	77.4	81.5
Chrysene d12	83.1	79.2	77.3	87.2	95.8	80.2	75.3	75.7	74.3	86.6	83.4	85.9	91.3	84.4	71.9
Naphthalene d8	92.3	94.0	92.3	97.8	96.3	96.1	92.9	98.6	92.2	99.9	92.2	99.6	101	95.9	90.4
Phenanthrene d10	93.9	95.2	91.0	97.4	100	95.9	91.4	97.0	91.2	102	95.3	101	104	97.0	89.8
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	0.00620	0.00140	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00130	0.00260
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	98.4	103	99.6	108	112	105	103	102	103	99.1	96.1	97.9	101	104	94.7
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11-US	WQS16	WQS17	WQS01	WQS01	WQS02	WQS05	WQS08	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS05	WQS08
Date	26-Sep-2018	26-Sep-2018	26-Sep-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	11-Oct-2018	11-Oct-2018	11-Oct-2018	11-Oct-2018
Time	1:30:00 PM	12:10:00 PM	11:35:00 AM	12:00:00 AM	9:25:00 AM	3:20:00 PM	12:40:00 PM	11:45:00 AM	1:10:00 PM	2:10:00 PM	11:20:00 AM	10:00:00 AM	12:00:00 PM	11:30:00 AM	11:00:00 AM
QAQC	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2172821-12	L2172821-18	L2172821-19	L2175314-8	L2175314-1	L2175314-7	L2175314-4	L2175314-3	L2175314-5	L2175314-6	L2175314-2	L2180208-1	L2180208-2	L2180208-4	L2180208-3
<i>In Situ</i>															
Temperature (°C)	11.70	7.50	8.10	0.20	0.20	2.30	2.90	1.70	2.60	5.50	-	2.70	3.70	4.60	4.80
pH	8.19	8.00	8.26	8.04	8.04	7.52	7.28	7.38	7.41	7.47	-	8.06	7.74	7.78	7.83
Conductivity (µS/cm)	46.5	113	119	140	140	157	149	83.3	91.9	53.6	-	113	91.9	156	55.2
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	<5.0	13.3	16.2	<5.0	<5.0	<5.0	<5.0	5.70	6.40	<5.0	<5.0	6.80	6.30	5.10	7.70
Conductivity (µS/cm)	62.1	182	181	160	168	176	170	95.5	104	58.5	71.0	163	178	177	103
Hardness (as CaCO ₃)	26.3	88.2	85.6	79.0	79.3	90.2	78.3	44.8	51.1	28.4	30.8	71.7	82.5	77.1	44.6
pH	7.72	8.12	8.15	8.14	8.25	8.19	7.91	7.81	7.85	7.62	7.79	8.10	8.17	7.97	7.86
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.40	<3.0	<3.0	<3.0	3.00	<3.0	<3.0	<3.0
Total Dissolved Solids	47.0	122	121	102	106	107	113	74.0	71.0	44.0	47.0	106	109	114	70.0
Turbidity (NTU)	0.770	0.210	0.790	0.470	0.690	0.470	0.760	3.26	2.73	1.12	1.34	0.800	0.560	0.630	1.16
Acidity (as CaCO ₃)	1.70	2.10	1.70	<1.0	1.10	<1.0	1.80	1.70	1.60	1.80	2.00	<1.0	<1.0	1.60	1.80
Alkalinity, Total (as CaCO ₃)	28.3	85.5	83.6	85.8	89.7	96.9	51.5	42.5	44.9	28.1	32.1	84.4	91.7	60.1	46.0
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	<0.020	0.0390	0.0370	0.0310	0.0310	0.0350	0.0350	0.0300	0.0290	0.0210	0.0220	0.0300	0.0320	0.0310	0.0280
Sulphate (SO ₄)	3.63	11.6	11.8	2.72	2.71	2.83	34.3	7.00	9.74	3.52	4.35	3.22	3.39	28.5	7.05
Nutrients															
Total Nitrogen	0.0950	0.336	0.425	<0.030	0.0360	0.0380	0.0850	0.0330	0.0420	0.0620	0.0630	0.0610	0.0580	0.0820	0.0420
Total Kjeldahl Nitrogen	<0.050	0.182	0.202	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0101	0.165	0.209	<0.0050	<0.0050	<0.0050	0.0539	0.0135	0.0115	0.0262	0.0266	<0.0050	<0.0050	0.0382	<0.0050
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00370	0.00460	0.00670	<0.0020	<0.0020	<0.0020	0.00200	0.00540	0.00580	0.00200	0.00350	0.00420	0.00230	0.00280	0.00310
Dissolved Orthophosphate (as P)	0.00130	0.00200	0.00560	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00180
Carbon															
Total Organic Carbon	1.53	5.22	6.16	1.56	1.62	1.57	1.24	1.08	0.940	1.45	1.20	2.13	2.27	1.80	1.20
Dissolved Organic Carbon	1.09	5.15	5.43	0.850	1.42	1.49	1.35	1.28	0.910	0.690	1.12	2.10	1.97	1.75	1.16
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0372	0.0154	0.0359	0.0130	0.0135	0.0116	0.0256	0.372	0.0878	0.0327	0.0447	0.0271	0.0242	0.0262	0.0482
Antimony (Sb)	<0.00010	<0.00010	<0.00010	0.000150	0.000150	0.000130	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	0.000130	<0.00010	<0.00010
Arsenic (As)	0.000230	0.000370	0.000400	0.000520	0.000500	0.000430	0.000220	0.000280	0.000210	0.000180	0.000180	0.000440	0.000370	0.000200	0.000180
Barium (Ba)	0.0232	0.0688	0.0650	0.0337	0.0334	0.0360	0.0614	0.0481	0.0479	0.0255	0.0286	0.0306	0.0336	0.0579	0.0438
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	0.0150	0.0150	0.0160	<0.010	<0.010	<0.010	<0.010	<0.010	0.0140	0.0160	<0.010	<0.010
Cadmium (Cd)	<0.0000050	0.0000143	0.0000152	<0.0000050	<0.0000050	<0.0000050	0.0000092	0.0000158	0.0000107	<0.0000050	0.0000051	<0.0000050	<0.0000050	0.0000067	0.0000086
Calcium (Ca)	9.11	23.5	22.8	25.3	25.0	26.7	24.9	14.7	16.1	9.39	10.5	23.4	24.0	23.4	14.4
Chromium (Cr)	<0.00010	0.000340	<0.00010	0.000310	0.000320	0.000310	0.000590	0.000290	0.000120	<0.00010	<0.00010	<0.00070	<0.00070	<0.00050	<0.00050
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000200	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000610	0.00128	0.00148	0.000680	0.000690	0.000690	0.000990	0.00133	0.000680	0.000600	0.000590	0.00105	0.00106	0.00104	0.000680
Iron (Fe)	0.0430	<0.030	0.0380	<0.030	<0.030	<0.030	0.0340	0.487	0.212	0.0370	0.0630	<0.030	<0.030	0.0300	0.195
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000347	0.000115	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000720
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.05	7.49	7.20	4.64	4.41	5.43	4.43	2.32	2.59	1.22	1.44	4.32	5.08	4.53	2.16

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11-US	WQS16	WQS17	WQS01	WQS01	WQS02	WQS05	WQS08	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS05	WQS08
Date	26-Sep-2018	26-Sep-2018	26-Sep-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	11-Oct-2018	11-Oct-2018	11-Oct-2018	11-Oct-2018
Time	1:30:00 PM	12:10:00 PM	11:35:00 AM	12:00:00 AM	9:25:00 AM	3:20:00 PM	12:40:00 PM	11:45:00 AM	1:10:00 PM	2:10:00 PM	11:20:00 AM	10:00:00 AM	12:00:00 PM	11:30:00 AM	11:00:00 AM
QA/QC	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2172821-12	L2172821-18	L2172821-19	L2175314-8	L2175314-1	L2175314-7	L2175314-4	L2175314-3	L2175314-5	L2175314-6	L2175314-2	L2180208-1	L2180208-2	L2180208-4	L2180208-3
Total Metals (cont'd)															
Manganese (Mn)	0.00677	0.000290	0.00226	0.000920	0.001000	0.00855	0.00484	0.0413	0.0218	0.00746	0.00849	0.00130	0.00691	0.00389	0.0186
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000390	0.0000920	0.0000690	0.000111	0.000112	0.000129	0.000538	0.000597	0.000605	0.000366	0.000443	0.000110	0.000121	0.000404	0.000607
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.292	0.450	0.452	0.179	0.176	0.202	0.398	0.358	0.333	0.307	0.320	0.164	0.195	0.354	0.325
Selenium (Se)	<0.000050	<0.000050	<0.000050	0.0000550	0.0000580	<0.000050	0.000101	0.0000950	0.0000710	<0.000050	<0.000050	0.0000610	0.0000650	0.0000720	0.0000680
Silicon (Si)	1.72	3.85	4.11	3.07	3.03	3.19	2.71	3.24	2.82	1.83	2.06	3.22	3.32	2.69	2.77
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	2.60	2.50	3.70	3.70	3.90	2.50	<2.0	<2.0	<2.0	<2.0	3.80	4.00	3.00	<2.0
Strontium (Sr)	0.0355	0.0641	0.0652	0.124	0.119	0.128	0.0923	0.0728	0.0740	0.0378	0.0440	0.110	0.116	0.0882	0.0719
Sulphur (S)	1.28	4.07	4.05	0.970	0.860	0.890	12.0	2.32	3.41	1.09	1.38	1.29	1.33	0.983	2.48
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0130	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000290	0.0000130	0.0000120	0.000123	0.000123	0.000135	0.0000470	0.0000670	0.0000570	0.0000310	0.0000300	0.000136	0.000137	0.0000580	0.0000500

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11-US	WQS16	WQS17	WQS01	WQS01	WQS02	WQS05	WQS08	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS05	WQS08
Date	26-Sep-2018	26-Sep-2018	26-Sep-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	2-Oct-2018	11-Oct-2018	11-Oct-2018	11-Oct-2018	11-Oct-2018
Time	1:30:00 PM	12:10:00 PM	11:35:00 AM	12:00:00 AM	9:25:00 AM	3:20:00 PM	12:40:00 PM	11:45:00 AM	1:10:00 PM	2:10:00 PM	11:20:00 AM	10:00:00 AM	12:00:00 PM	11:30:00 AM	11:00:00 AM
QAQC	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2172821-12	L2172821-18	L2172821-19	L2175314-8	L2175314-1	L2175314-7	L2175314-4	L2175314-3	L2175314-5	L2175314-6	L2175314-2	L2180208-1	L2180208-2	L2180208-4	L2180208-3
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	85.2	75.6	80.5	96.9	100.0	98.1	85.1	99.7	93.1	92.5	104	94.1	83.1	77.4	76.0
Chrysene d12	78.9	86.4	79.5	73.9	73.5	73.6	62.9	75.6	66.4	73.4	70.8	93.1	86.8	79.0	91.3
Naphthalene d8	98.0	97.9	90.8	112	108	113	98.5	115	113	110	112	83.2	84.7	78.4	78.7
Phenanthrene d10	98.1	99.3	96.2	96.7	98.8	98.1	84.8	98.3	95.6	95.0	99.0	109	95.3	87.0	90.4
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.00220	<0.0010	<0.0010	0.00140	<0.0010	<0.0010	<0.0010	<0.0010	0.00200	<0.0010	<0.0010	0.00130	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	104	108	102	89.1	105	105	99.7	106	100.0	97.1	99.4	91.9	97.7	99.4	87.0
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS09	WQS11-US	WQS12	WQS12	WQS02	WQS08	WQS01	WQS05	WQS05	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS03
Date	11-Oct-2018	11-Oct-2018	11-Oct-2018	11-Oct-2018	15-Oct-2018	15-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	22-Oct-2018	23-Oct-2018	22-Oct-2018
Time	1:00:00 PM	2:00:00 PM	12:00:00 AM	2:30:00 PM	1:00:00 PM	11:00:00 AM	9:30:00 AM	12:00:00 AM	10:30:00 AM	11:08:00 AM	11:57:00 AM	12:36:00 PM	9:45:00 AM	10:30:00 AM	10:30:00 AM
QAQC	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2180208-5	L2180208-6	L2180208-10	L2180208-7	L2182796-2	L2182796-4	L2182796-1	L2182796-8	L2182796-3	L2182796-5	L2182796-6	L2182796-7	L2186826-1	L2186826-2	L2186826-3
<i>In Situ</i>															
Temperature (°C)	5.20	7.60	7.70	7.70	3.40	2.80	2.20	2.80	2.80	2.90	5.30	5.20	1.20	1.00	1.50
pH	7.77	7.71	7.63	7.63	8.32	8.44	8.83	8.26	8.26	8.17	8.13	8.05	8.10	8.15	8.28
Conductivity (µS/cm)	62.3	43.5	46.8	46.8	94.1	51.3	83.7	92.6	92.6	60.1	40.1	43.3	88.4	96.0	166
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	1.90	14.6	14.1
Dissolved Oxygen %	-	-	-	-	-	-	-	-	-	-	-	-	14.0	103	101
ORP	-	-	-	-	-	-	-	-	-	-	-	-	164	30.6	127
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-
Physical Tests															
Colour, True	5.80	<5.0	<5.0	<5.0	6.50	5.40	7.70	<5.0	<5.0	5.90	<5.0	<5.0	<5.0	<5.0	14.6
Conductivity (µS/cm)	114	76.4	78.0	76.6	175	97.1	161	175	176	112	69.0	75.8	161	175	295
Hardness (as CaCO ₃)	50.8	33.1	31.9	33.0	80.1	42.1	72.4	77.1	77.6	49.2	29.6	32.2	81.5	87.9	153
pH	7.90	7.74	7.72	7.70	8.10	7.81	8.09	7.92	7.91	7.86	7.68	7.71	7.95	8.05	8.31
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	74.0	54.0	56.0	55.0	103	62.0	105	106	104	72.0	50.0	49.0	104	110	194
Turbidity (NTU)	1.03	1.20	1.000	1.12	0.400	2.73	0.500	1.07	0.660	1.51	1.21	1.22	0.590	0.600	0.550
Acidity (as CaCO ₃)	1.90	1.90	1.90	2.00	1.70	1.90	1.90	2.00	2.10	2.00	1.90	2.00	1.50	1.90	<1.0
Alkalinity, Total (as CaCO ₃)	49.1	35.4	35.1	34.8	90.3	43.0	83.2	56.0	56.5	47.7	31.9	34.1	83.9	94.0	174
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	0.550	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0290	0.0220	0.0230	0.0220	0.0340	0.0290	0.0310	0.0320	0.0320	0.0310	0.0230	0.0220	0.0310	0.0330	0.0710
Sulphate (SO ₄)	9.42	4.02	4.81	4.77	3.44	7.22	3.35	30.2	30.2	9.79	3.93	4.91	3.38	3.48	2.43
Nutrients															
Total Nitrogen	0.0530	0.0610	0.0610	0.0560	0.0590	0.0490	0.0540	0.0860	0.0870	0.0460	0.0590	0.0640	0.0350	0.0590	0.107
Total Kjeldahl Nitrogen	0.0550	0.0530	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0520	0.0990
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	<0.0050	0.00560	0.0181	0.0125	<0.0050	0.00740	<0.0050	0.0473	0.0481	0.01000	0.00800	0.0122	<0.0050	<0.0050	<0.0050
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00300	0.00310	0.00350	0.00340	0.00270	0.00410	0.00230	<0.0020	<0.0020	0.00300	0.00290	0.00300	<0.0020	<0.0020	<0.0020
Dissolved Orthophosphate (as P)	0.00160	0.00180	0.00160	0.00170	<0.0010	0.001000	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	1.13	1.43	1.22	1.15	2.04	0.970	1.73	1.70	1.44	1.24	1.30	1.22	1.29	1.65	4.43
Dissolved Organic Carbon	1.12	1.64	1.16	1.23	2.01	1.08	1.71	1.72	1.58	1.25	1.32	1.17	1.26	1.41	4.01
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0390	0.0385	0.0369	0.0420	0.0150	0.0712	0.0202	0.0374	0.0321	0.0590	0.0415	0.0427	0.0143	0.0117	0.0172
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	<0.00010	0.000150	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000170	0.000140	<0.00010
Arsenic (As)	0.000180	0.000140	0.000150	0.000160	0.000380	0.000170	0.000480	0.000190	0.000200	0.000190	0.000160	0.000170	0.000470	0.000390	0.000720
Barium (Ba)	0.0448	0.0312	0.0283	0.0280	0.0341	0.0440	0.0321	0.0586	0.0597	0.0455	0.0272	0.0293	0.0317	0.0359	0.118
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	0.0160	<0.010	0.0150	<0.010	<0.010	<0.010	<0.010	<0.010	0.0140	0.0170	0.0180
Cadmium (Cd)	0.0000085	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000093	<0.0000050	0.0000079	0.0000079	0.0000082	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000071
Calcium (Ca)	16.0	10.8	13.7	11.0	24.1	13.7	22.4	22.9	23.1	15.9	9.79	10.6	22.7	26.9	31.6
Chromium (Cr)	<0.00050	<0.00050	<0.00050	<0.00050	0.000620	0.000130	0.000340	0.000150	0.000160	0.000130	0.000110	0.000120	0.000240	0.000230	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000690	0.000640	0.000580	0.000650	0.000850	0.000630	0.000800	0.000910	0.000880	0.000600	0.000590	0.000560	0.000710	0.000730	0.000820
Iron (Fe)	0.167	0.0500	0.0610	0.0670	<0.030	0.196	<0.030	0.0400	0.0340	0.172	0.0510	0.0650	<0.030	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000102	<0.000050	0.000117	<0.000050	0.0000560	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150
Magnesium (Mg)	2.67	1.76	1.54	1.51	4.63	2.09	4.16	4.22	4.11	2.53	1.28	1.55	4.16	5.43	18.3

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS09	WQS11-US	WQS12	WQS12	WQS02	WQS08	WQS01	WQS05	WQS05	WQS05	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS03
Date	11-Oct-2018	11-Oct-2018	11-Oct-2018	11-Oct-2018	15-Oct-2018	15-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	22-Oct-2018	23-Oct-2018	22-Oct-2018
Time	1:00:00 PM	2:00:00 PM	12:00:00 AM	2:30:00 PM	1:00:00 PM	11:00:00 AM	9:30:00 AM	12:00:00 AM	10:30:00 AM	11:08:00 AM	11:57:00 AM	12:36:00 PM	9:45:00 AM	10:30:00 AM	10:30:00 AM	
QA/QC	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2180208-5	L2180208-6	L2180208-10	L2180208-7	L2182796-2	L2182796-4	L2182796-1	L2182796-8	L2182796-3	L2182796-5	L2182796-6	L2182796-7	L2186826-1	L2186826-2	L2186826-3	
Total Metals (cont'd)																
Manganese (Mn)	0.0163	0.0117	0.00737	0.00797	0.00455	0.0191	0.000740	0.00366	0.00353	0.0168	0.00714	0.00821	0.000550	0.00581	0.000370	
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum (Mo)	0.000558	0.000380	0.000398	0.000401	0.000181	0.000632	0.000114	0.000438	0.000411	0.000576	0.000368	0.000402	0.000134	0.000134	0.000372	
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	
Potassium (K)	0.333	0.313	0.319	0.317	0.193	0.329	0.171	0.364	0.358	0.331	0.309	0.313	0.138	0.167	0.356	
Selenium (Se)	0.0000600	<0.000050	<0.000050	<0.000050	<0.000050	0.0000690	<0.000050	0.0000580	0.000117	0.0000600	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Silicon (Si)	2.74	2.03	2.18	2.16	3.19	2.64	3.09	2.71	2.71	2.75	1.93	2.15	3.17	3.43	3.25	
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium (Na)	<2.0	<2.0	<2.0	<2.0	3.80	<2.0	3.70	<2.0	2.60	<2.0	<2.0	<2.0	3.70	4.10	10.2	
Strontium (Sr)	0.0739	0.0484	0.0470	0.0460	0.114	0.0680	0.106	0.0850	0.0829	0.0725	0.0382	0.0433	0.118	0.125	0.221	
Sulphur (S)	3.15	1.54	1.80	1.74	1.37	2.70	1.48	10.2	10.6	3.46	1.46	1.92	0.720	0.920	0.620	
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Uranium (U)	0.0000540	0.0000410	0.0000360	0.0000370	0.000129	0.0000550	0.000115	0.0000490	0.0000540	0.0000550	0.0000280	0.0000290	0.000121	0.000141	0.000135	
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	0.000830	<0.00050	0.000940	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000940	0.000890	0.000620	
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	
Dissolved Metals																
Aluminum (Al)	0.00760	0.00830	0.00730	0.00870	0.00420	0.0138	0.00440	0.00540	0.00450	0.0119	0.00660	0.00710	0.00440	0.00330	0.0128	
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	0.000140	<0.00010	0.000140	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000150	0.000120	<0.00010	
Arsenic (As)	0.000150	0.000120	0.000120	0.000110	0.000330	0.000130	0.000440	0.000150	0.000170	0.000160	0.000120	0.000110	0.000400	0.000320	0.000650	
Barium (Ba)	0.0451	0.0316	0.0299	0.0293	0.0363	0.0446	0.0329	0.0611	0.0633	0.0521	0.0281	0.0293	0.0332	0.0347	0.111	
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron (B)	<0.010	<0.010	<0.010	<0.010	0.0150	<0.010	0.0130	<0.010	<0.010	<0.010	<0.010	<0.010	0.0160	0.0170	0.0190	
Cadmium (Cd)	0.0000068	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000082	<0.0000050	0.0000052	0.0000061	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000077	
Calcium (Ca)	16.1	10.4	10.2	10.7	24.1	13.6	22.2	23.7	23.6	15.4	9.62	10.5	26.0	27.5	33.0	
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	0.000290	<0.00010	0.000300	0.000140	0.000150	0.000110	<0.00010	<0.00010	0.000320	0.000260	<0.00010	
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper (Cu)	0.000640	0.000590	0.000550	0.000600	0.000590	0.000820	<0.000790	0.000850	0.000880	0.000550	<0.00050	<0.00050	0.000700	0.000680	0.000720	
Iron (Fe)	0.0950	<0.030	<0.030	0.0320	<0.030	0.0710	<0.030	<0.030	<0.030	0.0780	<0.030	<0.030	<0.030	<0.030	<0.030	
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00170	
Magnesium (Mg)	2.60	1.74	1.53	1.55	4.84	2.00	4.13	4.36	4.54	2.59	1.34	1.46	4.03	4.70	17.2	
Manganese (Mn)	0.0142	0.00854	0.00491	0.00597	0.00406	0.0174	0.000320	0.00285	0.00313	0.0171	0.00551	0.00650	0.000300	0.00520	0.000330	
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum (Mo)	0.000665	0.000407	0.000440	0.000453	0.000117	0.000624	0.0000970	0.000433	0.000419	0.000574	0.000352	0.000393	0.0000960	0.000139	0.000328	
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	
Potassium (K)	0.338	0.322	0.330	0.336	0.197	0.336	0.174	0.382	0.369	0.374	0.320	0.319	0.152	0.175	0.390	
Selenium (Se)	0.0000840	<0.000050	<0.000050	<0.000050	<0.000050	0.0000760	<0.000050	0.0000670	0.000109	0.0000780	<0.000050	<0.000050	0.0000730	<0.000050	<0.000050	
Silicon (Si)	2.68	1.98	2.13	2.14	3.08	2.50	2.97	2.52	2.69	2.51	1.77	1.93	2.81	3.05	2.84	
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium (Na)	<2.0	<2.0	<2.0	<2.0	4.30	<2.0	3.80	3.00	3.10	2.10	<2.0	<2.0	4.00	3.80	10.2	
Strontium (Sr)	0.0833	0.0483	0.0496	0.0498	0.117	0.0684	0.113	0.0879	0.0845	0.0723	0.0398	0.0443	0.115	0.120	0.222	
Sulphur (S)	2.97	1.16	1.35	1.45	1.23	2.42	0.940	9.49	10.1	2.96	1.21	1.54	0.870	0.940	<0.50	
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Uranium (U)	0.0000490	0.0000380	0.0000280	0.0000320	0.000128	0.0000470	0.000114	0.0000520	0.0000490	0.0000550	0.0000280	0.0000300	0.000118	0.000143	0.000137	
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	0.000680	<0.00050	0.000740	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000720	0.000600	<0.00050	
Zinc (Zn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00220	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Polycyclic Aromatic Hydrocarbons																
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00				

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS09	WQS11-US	WQS12	WQS12	WQS02	WQS08	WQS01	WQS05	WQS05	WQS09	WQS11-US	WQS12	WQS01	WQS02	WQS03
Date	11-Oct-2018	11-Oct-2018	11-Oct-2018	11-Oct-2018	15-Oct-2018	15-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018	22-Oct-2018	23-Oct-2018	22-Oct-2018
Time	1:00:00 PM	2:00:00 PM	12:00:00 AM	2:30:00 PM	1:00:00 PM	11:00:00 AM	9:30:00 AM	12:00:00 AM	10:30:00 AM	11:08:00 AM	11:57:00 AM	12:36:00 PM	9:45:00 AM	10:30:00 AM	10:30:00 AM
QAQC	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2180208-5	L2180208-6	L2180208-10	L2180208-7	L2182796-2	L2182796-4	L2182796-1	L2182796-8	L2182796-3	L2182796-5	L2182796-6	L2182796-7	L2186826-1	L2186826-2	L2186826-3
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	82.4	87.5	65.5	76.2	76.6	78.1	77.0	81.5	89.9	93.2	79.6	82.8	75.5	77.5	73.2
Chrysene d12	97.9	95.3	67.5	81.8	89.3	95.4	93.0	93.6	104	107	99.0	98.2	88.2	87.3	84.1
Naphthalene d8	84.8	90.5	64.8	76.7	84.3	87.3	88.8	84.4	96.0	95.9	86.9	82.8	84.0	87.7	85.1
Phenanthrene d10	97.0	103	76.9	92.4	89.8	87.0	84.0	86.1	97.7	98.7	90.4	91.6	90.2	93.3	86.8
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	0.00170	0.00130	<0.0010	<0.0010	0.00110	<0.0010	<0.0010	<0.0010	0.00110	<0.0010	0.00110
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	89.0	97.4	88.8	92.2	103	102	108	92.2	103	106	95.5	106	91.1	97.1	89.9
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11	WQS11-US	WQS13	WQS16	WQS17	WQS03-DS	WQS04B	WQS05	WQS06	WQS06	WQS06-US	WQS08	WQS09	WQS10	WQS12
Date	22-Oct-2018	22-Oct-2018	22-Oct-2018	22-Oct-2018	22-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018
Time	11:45:00 AM	1:00:00 PM	11:00:00 AM	2:30:00 PM	3:00:00 PM	1:20:00 PM	11:30:00 AM	12:00:00 PM	12:00:00 AM	12:30:00 PM	2:00:00 PM	9:15:00 AM	12:00:00 PM	2:00:00 PM	12:00:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Field Duplicate
ALS Sample ID	L2186826-13	L2186826-12	L2186826-15	L2186826-16	L2186826-17	L2186826-4	L2186826-5	L2186826-6	L2186826-18	L2186826-8	L2186826-7	L2186826-9	L2186826-10	L2186826-11	L2186826-19
<i>In Situ</i>															
Temperature (°C)	4.90	5.40	2.60	3.80	4.00	0.80	0.60	1.70	2.40	2.40	3.80	1.30	1.70	3.20	5.00
pH	7.85	7.80	7.80	7.57	7.47	8.25	8.12	7.99	7.92	7.92	7.92	7.88	7.89	7.99	7.76
Conductivity (µS/cm)	39.8	40.9	88.9	103	101	181	103	99.8	98.8	98.8	96.4	102	62.7	66.1	45.9
Specific Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	21.9	12.3	15.0	11.1	11.2	14.0	14.3	14.6	13.9	13.9	12.5	11.0	14.6	14.2	13.2
Dissolved Oxygen %	171	97.0	110	84.0	84.0	102	100.0	105	102	102	93.0	1.50	104	106	102
ORP	89.6	80.0	102	80.2	82.3	72.8	42.2	45.5	59.8	59.8	65.3	13.8	52.0	72.9	74.0
Turbidity (NTU)	0.38	0.15	0	0	0	0	0	0	0	0	0	0.7	0	-	0
Physical Tests															
Colour, True	<5.0	<5.0	<5.0	13.5	14.2	16.2	5.10	<5.0	<5.0	<5.0	<5.0	5.60	5.80	5.60	<5.0
Conductivity (µS/cm)	63.2	66.1	152	172	168	329	191	175	171	171	159	101	114	112	75.9
Hardness (as CaCO ₃)	30.9	33.7	72.3	88.3	85.1	162	98.3	87.4	80.9	82.8	77.1	51.0	56.6	56.5	37.0
pH	7.46	7.50	7.68	7.63	7.56	8.30	8.11	7.80	7.81	7.71	7.69	7.72	7.73	7.74	7.60
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	52.0	51.0	105	116	115	224	125	126	115	116	114	74.0	81.0	79.0	54.0
Turbidity (NTU)	1.24	1.14	0.510	0.320	0.230	1.21	1.48	1.07	0.730	1.21	0.690	1.33	1.08	0.870	0.780
Acidity (as CaCO ₃)	1.90	2.00	2.10	3.50	3.80	<1.0	<1.0	1.80	1.90	1.90	1.90	1.90	2.10	1.80	2.10
Alkalinity, Total (as CaCO ₃)	30.2	31.4	38.9	75.8	74.0	163	105	59.2	46.2	47.8	44.6	47.0	50.8	50.6	32.4
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	0.570	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.690
Fluoride (F)	0.0220	0.0210	0.0280	0.0490	0.0480	0.0610	0.0340	0.0310	0.0310	0.0330	0.0280	0.0310	0.0320	0.0320	0.0250
Sulphate (SO ₄)	3.83	3.52	34.0	11.6	11.2	26.4	5.01	30.7	36.8	36.9	34.5	7.13	9.57	9.36	4.90
Nutrients															
Total Nitrogen	0.0740	0.0530	0.1000	0.169	0.221	0.143	0.0420	0.140	0.110	0.107	0.134	0.0500	0.0430	0.0350	0.0720
Total Kjeldahl Nitrogen	0.0560	<0.050	<0.050	0.169	0.170	0.147	<0.050	<0.050	<0.050	0.0780	<0.050	<0.050	<0.050	<0.050	<0.050
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.00950	0.00850	0.0731	0.0309	0.0467	0.0138	<0.0050	0.0546	0.0688	0.0746	0.0695	0.00890	0.0122	0.00830	0.0301
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00300	0.00240	<0.0020	0.00380	0.00250	0.00460	0.00220	<0.0020	0.00220	<0.0020	<0.0020	0.00300	0.00330	0.00240	0.00290
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	1.28	1.23	0.920	5.34	5.45	5.44	2.01	1.42	1.20	1.01	1.02	0.820	0.950	0.770	0.960
Dissolved Organic Carbon	1.14	1.21	1.05	5.08	5.34	5.43	1.67	1.16	1.29	1.11	1.13	1.05	0.830	0.980	1.12
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0308	0.0253	0.0122	0.0144	0.0139	0.0954	0.0360	0.0202	0.0162	0.0211	0.0134	0.0382	0.0275	0.0223	0.0248
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000170	0.000160	0.000160	0.000280	0.000260	0.000350	0.000310	0.000200	0.000120	0.000150	0.000160	0.000220	0.000170	0.000180	0.000140
Barium (Ba)	0.0239	0.0255	0.0607	0.0617	0.0603	0.0678	0.0368	0.0595	0.0631	0.0641	0.0614	0.0434	0.0474	0.0416	0.0280
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0160	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.000050	<0.000050	0.0000159	0.0000111	0.0000114	<0.000050	<0.000050	0.0000051	0.0000068	0.0000095	0.0000107	0.0000118	0.0000086	0.0000064	<0.000050
Calcium (Ca)	9.18	9.81	21.8	21.8	21.0	27.9	26.0	23.5	24.6	23.4	22.3	15.5	17.2	15.8	10.6
Chromium (Cr)	<0.00010	<0.00010	0.000160	<0.00010	0.000110	0.000730	0.000140	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000640	0.000560	0.00251	0.00126	0.00136	0.00139	0.000840	0.000880	0.000790	0.000930	0.000860	0.000610	0.000540	0.000520	0.000610
Iron (Fe)	0.0400	0.0340	<0.030	<0.030	<0.030	0.135	0.0450	<0.030	<0.030	0.0320	<0.030	0.192	0.163	0.139	0.0410
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000750	0.0000610	<0.000050	<0.000050	<0.000050	<0.000050	0.0000620	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.20	1.31	3.20	7.23	6.67	19.1	5.87	4.66	4.51	4.11	3.64	2.23	2.71	2.44	1.59

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11	WQS11-US	WQS13	WQS16	WQS17	WQS03-DS	WQS04B	WQS05	WQS06	WQS06	WQS06-US	WQS08	WQS09	WQS10	WQS12
Date	22-Oct-2018	22-Oct-2018	22-Oct-2018	22-Oct-2018	22-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018
Time	11:45:00 AM	1:00:00 PM	11:00:00 AM	2:30:00 PM	3:00:00 PM	1:20:00 PM	11:30:00 AM	12:00:00 PM	12:00:00 AM	12:30:00 PM	2:00:00 PM	9:15:00 AM	12:00:00 PM	2:00:00 PM	12:00:00 AM
QA/QC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Field Duplicate
ALS Sample ID	L2186826-13	L2186826-12	L2186826-15	L2186826-16	L2186826-17	L2186826-4	L2186826-5	L2186826-6	L2186826-18	L2186826-8	L2186826-7	L2186826-9	L2186826-10	L2186826-11	L2186826-19
Total Metals (cont'd)															
Manganese (Mn)	0.00642	0.00649	0.000770	0.000430	0.000410	0.00495	0.00512	0.00298	0.00332	0.00360	0.00137	0.0219	0.0185	0.0164	0.00666
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000388	0.000406	0.000556	0.000104	0.0000880	0.000308	0.000171	0.000463	0.000516	0.000479	0.000577	0.000630	0.000630	0.000604	0.000405
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000890	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.260	0.275	0.344	0.421	0.397	0.652	0.217	0.324	0.386	0.383	0.308	0.265	0.283	0.255	0.335
Selenium (Se)	<0.000050	<0.000050	0.000121	<0.000050	0.0000750	0.0000740	<0.000050	0.0000600	0.0000930	0.0000790	0.000111	0.0000820	0.0000760	0.0000730	<0.000050
Silicon (Si)	1.97	1.99	2.64	3.38	3.52	3.01	3.48	2.90	2.66	2.66	2.56	2.80	2.92	2.74	2.19
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	<2.0	<2.0	2.80	2.70	14.0	4.20	2.90	2.80	2.70	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0408	0.0394	0.0699	0.0621	0.0569	0.190	0.134	0.0981	0.0840	0.0819	0.0797	0.0755	0.0838	0.0755	0.0432
Sulphur (S)	0.990	0.920	12.1	3.84	3.89	9.42	1.34	10.8	13.0	12.6	11.4	1.86	3.01	2.74	1.26
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000260	0.0000280	0.0000350	0.0000190	0.0000110	0.000265	0.000149	0.0000570	0.0000390	0.0000430	0.0000380	0.0000540	0.0000570	0.0000550	0.0000310
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000660	0.000690	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.00500	0.00670	0.00500	0.0110	0.0105	0.00630	0.0254	0.00450	0.00610	0.00490	0.00400	0.00670	0.00480	0.00500	0.00730
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	<0.00010	0.000110	0.000140	0.000220	0.000220	0.000230	0.000260	0.000130	<0.00010	<0.00010	0.000110	0.000120	0.000130	0.000120	<0.00010
Barium (Ba)	0.0260	0.0290	0.0658	0.0662	0.0667	0.0403	0.0633	0.0662	0.0668	0.0674	0.0679	0.0479	0.0492	0.0480	0.0285
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0160	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	0.0000137	0.0000090	0.0000105	<0.0000050	<0.0000050	<0.0000050	0.0000081	0.0000075	0.0000075	0.0000066	0.0000071	0.0000068	<0.0000050
Calcium (Ca)	10.5	11.2	23.7	24.3	23.2	37.3	30.2	27.8	25.7	26.4	25.0	16.6	18.4	18.4	12.2
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000190	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000510	0.000520	0.000900	0.00113	0.00157	0.00111	0.000820	0.000810	0.000780	0.000740	0.000810	<0.00050	<0.00050	<0.00050	0.000570
Iron (Fe)	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.0330	<0.030	<0.030	<0.030	<0.030	0.113	0.0910	0.0880	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.17	1.37	3.17	6.72	6.59	16.8	5.54	4.38	4.03	4.09	3.56	2.33	2.56	2.55	1.59
Manganese (Mn)	0.00436	0.00547	0.000370	0.000190	0.000370	0.000400	0.00521	0.00237	0.00260	0.00256	0.000840	0.0208	0.0175	0.0173	0.00861
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000382	0.000408	0.000539	0.000124	0.0000920	0.000278	0.000157	0.000410	0.000483	0.000529	0.000549	0.000579	0.000601	0.000712	0.000449
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000730	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.301	0.307	0.358	0.432	0.415	0.675	0.233	0.358	0.393	0.388	0.345	0.303	0.306	0.301	0.322
Selenium (Se)	<0.000050	<0.000050	0.0000740	<0.000050	<0.000050	<0.000050	<0.000050	0.0000680	0.0000860	0.000110	0.0000880	0.0000720	0.0000590	0.0000780	<0.000050
Silicon (Si)	1.78	1.77	2.45	3.14	3.34	2.51	3.09	2.47	2.51	2.37	2.33	2.58	2.60	2.57	2.08
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	<2.0	<2.0	2.70	2.60	13.6	4.50	3.00	2.70	2.70	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0387	0.0428	0.0699	0.0657	0.0635	0.180	0.130	0.0972	0.0860	0.0842	0.0748	0.0746	0.0782	0.0809	0.0464
Sulphur (S)	1.15	<0.50	11.2	3.29	3.53	7.01	0.580	8.26	12.7	10.3	9.54	1.19	1.98	2.00	1.33
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000260	0.0000300	0.0000310	0.0000180	<0.000010	0.000251	0.000144	0.0000550	0.0000370	0.0000360	0.0000360	0.0000500	0.0000580	0.0000560	0.0000310
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0010	<0.0010	0.00150	<0.0010	0.00130	<0.0010	0.00150	<0.0010	0.00120	<0.0010	0.001000	<0.0010	<0.0010	0.00110	<0.0010
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00		

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11	WQS11-US	WQS13	WQS16	WQS17	WQS03-DS	WQS04B	WQS05	WQS06	WQS06	WQS06-US	WQS08	WQS09	WQS10	WQS12
Date	22-Oct-2018	22-Oct-2018	22-Oct-2018	22-Oct-2018	22-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018	23-Oct-2018
Time	11:45:00 AM	1:00:00 PM	11:00:00 AM	2:30:00 PM	3:00:00 PM	1:20:00 PM	11:30:00 AM	12:00:00 PM	12:00:00 AM	12:30:00 PM	2:00:00 PM	9:15:00 AM	12:00:00 PM	2:00:00 PM	12:00:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Field Duplicate
ALS Sample ID	L2186826-13	L2186826-12	L2186826-15	L2186826-16	L2186826-17	L2186826-4	L2186826-5	L2186826-6	L2186826-18	L2186826-8	L2186826-7	L2186826-9	L2186826-10	L2186826-11	L2186826-19
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	72.3	75.4	79.1	78.0	83.2	84.7	73.9	75.8	82.9	86.2	79.7	81.1	76.6	73.8	69.5
Chrysene d12	99.5	88.2	87.3	88.9	85.0	91.4	87.5	88.2	94.8	90.5	91.2	95.4	88.0	85.2	77.9
Naphthalene d8	86.0	85.7	87.3	83.0	92.7	95.7	82.6	90.3	88.8	100	94.5	95.2	87.1	80.8	79.3
Phenanthrene d10	85.9	90.8	92.3	93.6	99.2	97.2	90.6	90.9	101	104	95.7	95.5	91.2	89.3	84.8
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001000	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	90.9	97.3	95.5	91.5	94.1	102	92.9	96.4	89.8	95.7	96.3	98.2	96.1	92.7	96.7
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS12	WQS02	WQS06	WQS08	WQS01	WQS03	WQS11	WQS11-US	WQS13	WQS13	WQS16	WQS17	WQS03-DS	WQS04B	WQS05
Date	23-Oct-2018	19-Nov-2018	19-Nov-2018	19-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	21-Nov-2018	21-Nov-2018	21-Nov-2018
Time	3:50:00 PM	1:45:00 PM	3:45:00 AM	11:45:00 AM	10:45:00 AM	10:15:00 AM	11:45:00 AM	4:00:00 PM	12:00:00 AM	11:15:00 AM	2:00:00 PM	2:30:00 PM	9:30:00 AM	10:50:00 AM	12:00:00 AM
QAQC	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Field Duplicate
ALS Sample ID	L2186826-14	L2200625-2	L2200625-5	L2200625-11	L2200625-1	L2200625-3	L2200625-14	L2200625-15	L2200625-20	L2200625-17	L2200625-9	L2200625-10	L2200625-4	L2200625-6	L2200625-21
<i>In Situ</i>															
Temperature (°C)	5.00	0.50	1.60	1.80	0.40	0.20	3.30	3.50	1.00	1.00	1.70	1.80	2.00	0.80	1.20
pH	7.76	7.96	7.80	8.12	8.28	8.66	7.90	7.80	7.99	7.99	7.71	7.63	8.24	8.05	7.99
Conductivity (µS/cm)	45.9	85.7	91.1	51.6	79.7	83.9	35.1	37.3	76.5	76.5	85.5	83.7	149	107	103
Specific Conductivity (µS/cm)	-	-	-	-	151	158	59.9	-	141	141	154	150	272	199	188
Dissolved Oxygen (mg/L)	13.2	-	-	-	-	-	-	-	-	-	-	-	12.6	13.1	13.1
Dissolved Oxygen %	102	-	-	-	-	-	-	-	-	-	-	-	88.7	91.3	92.6
ORP	74.0	-	-	-	-	-	-	-	-	-	-	-	60.1	-	69.3
Turbidity (NTU)	0	-	-	-	-	-	-	-	-	-	-	-	1.16	1.41	-
Physical Tests															
Colour, True	<5.0	7.80	<5.0	10.8	7.60	23.9	6.70	6.30	<5.0	<5.0	15.8	18.0	26.3	7.10	<5.0
Conductivity (µS/cm)	75.6	171	176	103	164	243	62.3	67.2	153	153	167	165	268	192	184
Hardness (as CaCO ₃)	36.1	83.8	81.2	46.3	79.1	118	28.9	30.4	69.3	68.4	81.8	79.4	124	95.2	82.4
pH	7.47	8.23	8.03	7.99	8.18	8.35	7.68	7.79	7.97	7.97	8.09	8.08	8.32	8.25	8.07
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	57.0	104	145	69.0	102	150	47.0	52.0	102	101	111	109	164	125	117
Turbidity (NTU)	1.24	0.710	0.660	1.20	0.600	0.690	0.970	1.09	0.360	0.450	0.160	0.220	0.950	1.66	0.700
Acidity (as CaCO ₃)	2.00	<1.0	1.80	1.80	1.30	<1.0	2.30	1.90	1.90	1.90	1.70	1.70	<1.0	<1.0	1.80
Alkalinity, Total (as CaCO ₃)	33.6	90.4	53.4	46.7	84.3	135	28.5	30.3	45.7	45.5	70.0	69.4	126	97.7	66.6
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.580	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0240	0.0320	0.0310	0.0300	0.0320	0.0610	0.0220	0.0230	0.0270	0.0270	0.0460	0.0510	0.0580	0.0340	0.0340
Sulphate (SO ₄)	4.85	2.88	33.2	5.74	2.72	1.82	4.05	4.10	28.5	28.6	13.5	13.3	21.4	5.06	26.5
Nutrients															
Total Nitrogen	0.0690	0.0730	0.148	0.0680	0.0670	0.177	0.0730	0.101	0.193	0.122	0.420	0.493	0.284	0.0550	0.106
Total Kjeldahl Nitrogen	<0.050	<0.050	<0.050	<0.050	<0.050	0.157	0.0520	<0.050	0.0890	0.0570	0.212	0.238	0.207	0.0560	0.0560
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0257	0.0114	0.0806	0.0160	0.0144	0.0322	0.0191	0.0180	0.0888	0.0896	0.276	0.298	0.0670	<0.0050	0.0663
Nitrite (as N)	<0.0010	0.001000	<0.0010	<0.0010	0.00110	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00240	<0.0020	<0.0020	0.00230	<0.0020	<0.0020	0.00210	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.00210	0.00610	<0.0020
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	0.00150	<0.0010	<0.0010	0.00290	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	0.990	1.90	1.47	1.84	1.70	5.86	1.66	1.85	1.57	1.64	5.85	5.81	7.31	2.07	1.71
Dissolved Organic Carbon	0.840	1.98	1.56	1.76	1.77	5.84	1.86	1.82	1.68	1.58	5.90	5.96	7.55	1.86	2.00
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0491	0.0393	0.0560	0.0333	0.0246	0.0415	0.0424	0.0442	0.0250	0.0196	0.0119	0.0152	0.0546	0.114	0.0478
Antimony (Sb)	<0.00010	0.000110	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000110	<0.00010
Arsenic (As)	0.000170	0.000390	0.000150	0.000200	0.000440	0.000760	0.000160	0.000180	0.000180	0.000170	0.000260	0.000270	0.000350	0.000340	0.000180
Barium (Ba)	0.0278	0.0335	0.0647	0.0412	0.0322	0.0915	0.0216	0.0237	0.0629	0.0621	0.0542	0.0566	0.0589	0.0366	0.0627
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	0.0170	<0.010	<0.010	0.0160	0.0180	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0160	<0.010
Cadmium (Cd)	0.0000080	<0.000050	0.0000089	0.0000063	<0.000050	<0.000050	<0.000050	<0.000050	0.0000080	0.0000057	0.0000096	0.0000069	<0.000050	<0.000050	0.0000063
Calcium (Ca)	10.7	26.1	24.8	15.0	24.9	25.7	9.46	9.99	22.2	22.1	21.0	20.8	27.5	28.6	25.6
Chromium (Cr)	0.000120	0.000370	0.000200	0.000130	0.000350	0.000200	0.000110	0.000110	0.000120	0.000130	0.000120	0.000130	0.000240	0.000340	0.000190
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000120	<0.00010
Copper (Cu)	0.000620	0.000920	0.00102	0.000660	0.000870	0.00109	0.000620	0.000660	0.000980	0.00101	0.00120	0.00125	0.00147	0.00111	0.000950
Iron (Fe)	0.0790	<0.030	0.0700	0.295	<0.030	0.0300	0.0670	0.0680	<0.030	<0.030	<0.030	<0.030	0.0490	0.112	0.0530
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00150	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001000	<0.0010	<0.0010
Magnesium (Mg)	1.49	5.53	4.99	2.58	4.72	15.6	1.37	1.52	3.69	3.60	7.68	7.30	15.4	6.32	5.18

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS12	WQS02	WQS06	WQS08	WQS01	WQS03	WQS11	WQS11-US	WQS13	WQS13	WQS16	WQS17	WQS03-DS	WQS04B	WQS05
Date	23-Oct-2018	19-Nov-2018	19-Nov-2018	19-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	21-Nov-2018	21-Nov-2018	21-Nov-2018
Time	3:50:00 PM	1:45:00 PM	3:45:00 AM	11:45:00 AM	10:45:00 AM	10:15:00 AM	11:45:00 AM	4:00:00 PM	12:00:00 AM	11:15:00 AM	2:00:00 PM	2:30:00 PM	9:30:00 AM	10:50:00 AM	12:00:00 AM
QA/QC	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Field Duplicate
ALS Sample ID	L2186826-14	L2200625-2	L2200625-5	L2200625-11	L2200625-1	L2200625-3	L2200625-14	L2200625-15	L2200625-20	L2200625-17	L2200625-9	L2200625-10	L2200625-4	L2200625-6	L2200625-21
Total Metals (cont'd)															
Manganese (Mn)	0.0102	0.00411	0.00472	0.0246	0.000760	0.000820	0.00728	0.00724	0.00104	0.000510	0.000170	0.000400	0.00126	0.00837	0.00415
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000397	0.000131	0.000464	0.000555	0.000117	0.000325	0.000387	0.000391	0.000496	0.000528	0.000119	0.000116	0.000253	0.000154	0.000418
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000760	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.322	0.189	0.391	0.284	0.160	0.355	0.307	0.322	0.324	0.321	0.368	0.361	0.578	0.246	0.347
Selenium (Se)	<0.000050	<0.000050	0.0000990	0.0000940	<0.000050	<0.000050	<0.000050	<0.000050	0.0001	0.000115	<0.000050	<0.000050	0.0000800	<0.000050	0.0000560
Silicon (Si)	2.22	3.40	2.63	3.17	3.45	3.32	2.13	2.19	2.65	2.59	3.17	3.32	2.89	3.58	2.76
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	4.30	3.30	2.00	4.10	8.30	<2.0	2.90	2.10	<2.0	2.70	2.70	11.8	4.70	3.50
Strontium (Sr)	0.0445	0.124	0.0902	0.0744	0.117	0.174	0.0415	0.0430	0.0756	0.0738	0.0606	0.0592	0.156	0.128	0.0963
Sulphur (S)	<2.0	1.08	11.9	2.23	1.06	0.900	1.47	1.47	9.92	9.91	4.77	4.89	8.00	1.88	9.84
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000330	0.000166	0.0000530	0.0000490	0.000157	0.0000960	0.0000290	0.0000330	0.0000530	0.0000590	0.0000200	0.0000150	0.000172	0.000165	0.0

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS12	WQS02	WQS06	WQS08	WQS01	WQS03	WQS11	WQS11-US	WQS13	WQS13	WQS16	WQS17	WQS03-DS	WQS04B	WQS05
Date	23-Oct-2018	19-Nov-2018	19-Nov-2018	19-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	20-Nov-2018	21-Nov-2018	21-Nov-2018	21-Nov-2018
Time	3:50:00 PM	1:45:00 PM	3:45:00 AM	11:45:00 AM	10:45:00 AM	10:15:00 AM	11:45:00 AM	4:00:00 PM	12:00:00 AM	11:15:00 AM	2:00:00 PM	2:30:00 PM	9:30:00 AM	10:50:00 AM	12:00:00 AM
QAQC	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Field Duplicate
ALS Sample ID	L2186826-14	L2200625-2	L2200625-5	L2200625-11	L2200625-1	L2200625-3	L2200625-14	L2200625-15	L2200625-20	L2200625-17	L2200625-9	L2200625-10	L2200625-4	L2200625-6	L2200625-21
Polycyclic Aromatic Hydrocarbons															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	80.8	109	110	112	113	90.9	117	94.3	97.8	110	110	128	112	117	106
Chrysene d12	85.6	90.7	96.7	103	102	97.6	106	84.8	87.7	98.3	101	107	105	100.0	95.9
Naphthalene d8	91.1	97.6	105	105	106	103	107	85.5	103	103	107	115	113	106	110
Phenanthrene d10	92.5	98.9	103	104	108	104	106	87.2	108	108	107	115	111	106	117
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds															
Benzene	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Methyl t-butyl ether (MTBE)	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	-	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045
ortho-Xylene	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylene	-	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075
4-Bromofluorobenzene (SS)	-	100	106	103	98.9	105	107	103	89.8	89.2	107	106	99.7	101	85.3
1,4-Difluorobenzene (SS)	-	101	103	105	98.3	106	107	104	96.4	95.8	106	109	108	105	96.5
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	98.2	101	104	106	111	109	98.6	105	95.2	93.5	105	101	102	102	103
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS05	WQS06-US	WQS09	WQS10	WQS12	WQS02	WQS06	WQS08	WQS03	WQS01	WQS10	WQS11	WQS11-US	WQS12	WQS12
Date	21-Nov-2018	21-Nov-2018	21-Nov-2018	21-Nov-2018	21-Nov-2018	10-Dec-2018	10-Dec-2018	10-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018
Time	11:10:00 AM	10:00:00 AM	10:50:00 AM	12:30:00 PM	1:00:00 PM	12:00:00 PM	9:15:00 AM	2:30:00 PM	10:15:00 AM	9:30:00 AM	4:00:00 PM	1:30:00 PM	3:15:00 PM	12:00:00 AM	2:30:00 PM
QAQC	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate
ALS Sample ID	L2200625-8	L2200625-7	L2200625-12	L2200625-13	L2200625-16	L2210255-2	L2210255-5	L2210255-11	L2210255-3	L2210255-1	L2210255-13	L2210255-14	L2210255-15	L2210255-21	L2210255-16
<i>In Situ</i>															
Temperature (°C)	1.20	1.20	2.00	2.20	3.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.20
pH	7.99	7.92	7.96	7.91	7.89	7.99	7.51	7.95	7.83	7.74	7.76	7.65	7.59	7.60	7.60
Conductivity (µS/cm)	103	90.7	64.4	64.4	44.0	110	109	50.1	159	97.4	67.0	37.2	88.8	41.6	41.6
Specific Conductivity (µS/cm)	188	166	115	114	74.5	211	209	-	304	-	128	72.2	74.3	79.2	79.2
Dissolved Oxygen (mg/L)	13.1	12.8	12.8	13.0	12.3	13.2	13.5	9.86	-	12.6	13.4	13.5	13.6	13.5	13.5
Dissolved Oxygen %	92.6	90.5	92.6	94.0	92.5	90.1	92.1	67.7	-	86.1	91.4	92.6	92.8	92.4	92.4
ORP	69.3	83.6	82.3	63.3	77.6	168	120	182	211	122	226	145	233	206	206
Turbidity (NTU)	-	0.1	0.71	0.79	0.87	1.03	0.44	0.43	1.03	0.66	0.38	0.43	0.49	1.2	1.2
Physical Tests															
Colour, True	<5.0	<5.0	9.80	8.30	<5.0	<5.0	<5.0	6.30	17.1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (µS/cm)	182	160	112	112	72.9	210	208	119	299	186	127	72.4	74.2	80.2	79.0
Hardness (as CaCO ₃)	82.9	74.3	51.4	52.1	32.3	103	94.3	56.1	146	90.3	60.0	31.6	33.1	35.4	35.0
pH	8.11	7.94	8.01	8.02	7.80	8.29	8.06	8.03	8.40	8.24	8.06	7.80	7.80	7.76	7.83
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.50	3.50	<3.0	<3.0	3.30	<3.0
Total Dissolved Solids	117	108	77.0	78.0	53.0	126	128	89.0	189	108	88.0	55.0	57.0	52.0	63.0
Turbidity (NTU)	0.690	0.430	1.27	1.17	0.820	0.310	0.490	0.920	0.550	0.540	1.25	0.870	0.720	0.870	0.900
Acidity (as CaCO ₃)	1.50	2.00	1.70	1.70	1.90	<1.0	1.20	1.10	<1.0	1.10	1.000	1.20	1.20	1.40	1.10
Alkalinity, Total (as CaCO ₃)	64.3	49.3	50.0	50.4	31.6	109	62.5	53.5	160	94.1	55.4	30.5	31.9	33.6	34.1
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	0.870	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0310	0.0280	0.0300	0.0300	0.0230	0.0380	0.0340	0.0330	0.0590	0.0340	0.0340	0.0240	0.0250	0.0270	0.0260
Sulphate (SO ₄)	26.8	29.4	7.31	7.17	4.48	3.53	38.8	6.36	2.50	3.18	8.09	4.58	4.58	4.56	4.94
Nutrients															
Total Nitrogen	0.110	0.124	0.0670	0.121	0.0790	0.0830	0.176	0.0910	0.157	0.0820	0.0860	0.0880	0.0890	0.102	0.0880
Total Kjeldahl Nitrogen	<0.050	0.0560	<0.050	0.0650	0.0570	<0.050	0.0630	<0.050	0.118	<0.050	0.0500	<0.050	<0.050	0.0530	<0.050
Ammonia as N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0673	0.0899	0.0244	0.0230	0.0263	0.0417	0.123	0.0482	0.0372	0.0456	0.0499	0.0289	0.0287	0.0304	0.0325
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	<0.0020	<0.0020	0.00200	0.00220	0.00240	0.00220	0.00220	0.00280	0.00250	0.00260	0.00390	0.00410	0.00290	0.00350	0.00420
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	0.00150	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	0.00110	0.00120	0.00120	0.001000	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	1.70	1.33	1.61	1.67	1.56	1.63	1.76	1.86	5.84	1.73	1.54	1.93	1.95	1.64	1.85
Dissolved Organic Carbon	1.80	1.36	1.64	1.77	1.61	1.68	2.01	1.67	5.84	1.59	1.36	1.93	1.99	1.60	2.00
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0465	0.0254	0.0414	0.0496	0.0419	0.0127	0.0233	0.0174	0.0265	0.0239	0.0410	0.0465	0.0287	0.0508	0.0385
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000170	0.000170	0.000220	0.000210	0.000150	0.000370	0.000150	0.000260	0.000690	0.000410	0.000230	0.000180	0.000200	0.000170	0.000190
Barium (Ba)	0.0569	0.0655	0.0438	0.0421	0.0243	0.0385	0.0657	0.0445	0.108	0.0355	0.0437	0.0219	0.0227	0.0247	0.0243
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	0.0210	<0.010	<0.010	0.0190	0.0190	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000105	0.0000064	0.0000067	0.0000051	<0.0000050	<0.0000050	0.0000065	0.0000058	<0.0000050	<0.0000050	0.0000076	<0.0000050	<0.0000050	0.0000070	0.0000057
Calcium (Ca)	25.5	23.2	16.4	16.5	10.6	30.4	27.6	17.7	30.2	26.9	18.2	10.2	10.3	10.6	11.1
Chromium (Cr)	0.000200	0.000150	0.000180	0.000160	0.0001	0.000350	0.000120	0.000160	0.000150	0.000360	0.000150	0.000160	<0.00010	0.000120	0.000110
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000950	0.000980	0.000680	0.000710	0.000650	0.000740	0.000880	0.000580	0.000810	0.000710	0.000650	0.000630	0.000600	0.000650	0.000610
Iron (Fe)	0.0490	<0.030	0.255	0.244	0.0830	<0.030	0.0370	0.208	<0.030	<0.030	0.218	0.0880	0.0650	0.102	0.0870
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000600	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00160	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	5.23	4.18	2.98	2.92	1.57	6.46	5.53	2.95	17.6	5.18	3.18	1.49	1.58	1.63	1.64

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS05	WQS06-US	WQS09	WQS10	WQS12	WQS02	WQS06	WQS08	WQS03	WQS01	WQS10	WQS11	WQS11-US	WQS12	WQS12
Date	21-Nov-2018	21-Nov-2018	21-Nov-2018	21-Nov-2018	21-Nov-2018	10-Dec-2018	10-Dec-2018	10-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018
Time	11:10:00 AM	10:00:00 AM	10:50:00 AM	12:30:00 PM	1:00:00 PM	12:00:00 PM	9:15:00 AM	2:30:00 PM	10:15:00 AM	9:30:00 AM	4:00:00 PM	1:30:00 PM	3:15:00 PM	12:00:00 AM	2:30:00 PM
QA/QC	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate
ALS Sample ID	L2200625-8	L2200625-7	L2200625-12	L2200625-13	L2200625-16	L2210255-2	L2210255-5	L2210255-11	L2210255-3	L2210255-1	L2210255-13	L2210255-14	L2210255-15	L2210255-21	L2210255-16
Total Metals (cont'd)															
Manganese (Mn)	0.00420	0.00121	0.0214	0.0197	0.00804	0.00253	0.00472	0.0301	0.00209	0.000960	0.0260	0.0121	0.00965	0.0128	0.0134
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000413	0.000538	0.000526	0.000540	0.000379	0.000151	0.000443	0.000541	0.000307	0.000120	0.000495	0.000390	0.000364	0.000367	0.000374
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.355	0.343	0.293	0.297	0.319	0.190	0.393	0.301	0.372	0.174	0.307	0.311	0.317	0.331	0.312
Selenium (Se)	0.0000570	0.000104	0.0000710	0.0000550	<0.000050	<0.000050	0.0000830	0.0000780	<0.000050	0.0000900	0.0000900	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)	2.85	2.60	3.11	3.13	2.27	3.41	2.50	3.47	3.56	3.32	3.34	2.22	2.20	2.32	2.30
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	3.50	2.40	2.30	2.20	<2.0	4.60	3.80	2.20	10.00	4.30	2.30	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0983	0.0794	0.0785	0.0782	0.0462	0.139	0.0963	0.0833	0.204	0.127	0.0827	0.0426	0.0436	0.0459	0.0466
Sulphur (S)	9.43	10.3	2.54	2.64	1.45	1.35	13.0	2.31	1.07	1.16	2.91	1.54	1.67	1.61	1.72
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000800	0.0000560	0.0000560	0.0000570	0.0000320	0.000203	0.0000650	0.0000550	0.000113	0.000193	0.0000670	0.0000340	0.0000290	0.0000350	0.0000350

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS05	WQS06-US	WQS09	WQS10	WQS12	WQS02	WQS06	WQS08	WQS03	WQS01	WQS10	WQS11	WQS11-US	WQS12	WQS12
Date	21-Nov-2018	21-Nov-2018	21-Nov-2018	21-Nov-2018	21-Nov-2018	10-Dec-2018	10-Dec-2018	10-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018	11-Dec-2018
Time	11:10:00 AM	10:00:00 AM	10:50:00 AM	12:30:00 PM	1:00:00 PM	12:00:00 PM	9:15:00 AM	2:30:00 PM	10:15:00 AM	9:30:00 AM	4:00:00 PM	1:30:00 PM	3:15:00 PM	12:00:00 AM	2:30:00 PM
QAQC	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate
ALS Sample ID	L2200625-8	L2200625-7	L2200625-12	L2200625-13	L2200625-16	L2210255-2	L2210255-5	L2210255-11	L2210255-3	L2210255-1	L2210255-13	L2210255-14	L2210255-15	L2210255-21	L2210255-16
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	124	111	110	77.2	93.2	79.9	102	75.1	74.3	72.2	93.5	81.4	86.9	77.2	88.7
Chrysene d12	122	101	94.3	90.1	80.9	91.5	84.7	105	98.2	102	106	94.2	104	104	102
Naphthalene d8	129	111	105	96.0	83.1	94.1	96.9	91.9	101	97.4	106	96.2	99.7	96.8	103
Phenanthrene d10	129	109	104	96.3	83.9	88.2	101	93.8	102	99.8	101	92.8	95.9	95.0	98.1
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00350	0.00120	0.00190	0.00180	0.00140	<0.0010	<0.0010	<0.0010	0.00110	0.00140
Volatile Organic Compounds															
Benzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-
Styrene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-
Toluene	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-
Xylene	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	105	105	107	105	87.5	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	106	104	108	110	93.8	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	104	103	100	105	98.8	93.5	91.4	90.7	92.6	95.9	99.2	94.3	92.1	91.8	97.5
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS16	WQS17	WQS13	WQS03-DS	WQS04B	WQS04B	WQS06-US	WQS05	WQS09	WQS01	WQS02	WQS03	WQS03-DS	WQS04B	WQS05
Date	11-Dec-2018	11-Dec-2018	11-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019
Time	12:45:00 PM	12:30:00 PM	11:40:00 AM	10:00:00 AM	12:00:00 AM	9:00:00 AM	10:30:00 AM	9:15:00 AM	9:45:00 AM	10:30:00 AM	9:25:00 AM	11:15:00 AM	10:00:00 AM	4:20:00 PM	4:45:00 PM
QAQC	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2210255-9	L2210255-10	L2210255-17	L2210255-4	L2210255-20	L2210255-6	L2210255-7	L2210255-8	L2210255-12	L2224631-1	L2224631-2	L2224631-3	L2224631-4	L2224631-6	L2224631-8
<i>In Situ</i>															
Temperature (°C)	0.20	0.10	0.10	0.00	0.00	0.00	-	0.00	0.00	0.10	0.20	0.10	0.05	0.20	0.20
pH	7.34	7.26	7.60	7.81	7.76	7.76	-	7.68	7.70	8.17	8.15	8.21	8.09	8.28	8.15
Conductivity (µS/cm)	101	97.0	88.9	156	122	122	-	110	62.6	84.5	92.8	122	134	89.7	91.0
Specific Conductivity (µS/cm)	192	185	168	-	234	234	-	-	120	160	176	232	257	171	174
Dissolved Oxygen (mg/L)	11.3	11.8	-	13.7	13.2	13.2	-	13.4	13.5	13.0	13.0	12.8	13.4	13.6	13.7
Dissolved Oxygen %	77.4	78.9	-	93.8	90.3	90.3	-	91.7	92.3	89.4	89.4	87.9	91.8	92.7	93.7
ORP	198	201	216	191	186	186	-	166	182	84.8	55.8	100	132	135	134
Turbidity (NTU)	1.33	1.37	1.08	0.93	0.16	0.16	-	0.76	0.49	0.34	0.01	0.15	1.5	0.07	0.22
Physical Tests															
Colour, True	9.80	10.3	<5.0	20.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	23.2	19.9	<5.0	<5.0
Conductivity (µS/cm)	190	182	169	442	230	232	179	206	123	179	189	258	281	218	201
Hardness (as CaCO ₃)	97.4	90.5	78.1	203	113	112	81.2	97.7	58.6	85.4	91.2	124	132	105	88.3
pH	8.08	8.06	7.96	8.39	8.32	8.32	8.01	8.12	8.03	8.16	8.05	8.16	8.11	8.08	7.93
Total Suspended Solids	<3.0	<3.0	<3.0	4.30	<3.0	3.10	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	124	121	113	279	154	151	118	130	90.0	109	116	155	175	133	113
Turbidity (NTU)	0.140	0.300	0.270	1.62	0.890	0.760	0.420	0.500	0.910	0.750	0.410	0.620	0.470	0.510	0.570
Acidity (as CaCO ₃)	1.000	1.000	1.20	<1.0	<1.0	<1.0	1.20	1.000	1.10	1.30	1.50	1.40	1.80	2.40	2.70
Alkalinity, Total (as CaCO ₃)	79.9	76.7	49.5	183	116	116	54.2	70.8	53.6	90.0	104	141	141	110	74.0
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	0.520	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.670	<0.50	0.550	0.770
Fluoride (F)	0.0450	0.0460	0.0290	0.0580	0.0380	0.0380	0.0310	0.0350	0.0330	0.0380	0.0390	0.0730	0.0600	0.0420	0.0400
Sulphate (SO ₄)	14.7	14.1	31.9	52.2	6.46	6.47	32.8	31.9	8.01	3.10	3.47	2.06	14.4	6.26	26.3
Nutrients															
Total Nitrogen	0.685	0.671	0.163	0.372	0.0910	0.0770	0.156	0.147	0.0970	0.117	0.128	0.249	0.240	0.105	0.156
Total Kjeldahl Nitrogen	0.257	0.306	<0.050	0.253	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.120	0.133	<0.050	<0.050
Ammonia as N	<0.0050	0.00790	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.497	0.504	0.124	0.160	0.0319	0.0325	0.122	0.103	0.0551	0.111	0.0684	0.0594	0.0936	0.0570	0.110
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00210	0.00490	<0.0020	0.00600	0.00330	0.00280	<0.0020	<0.0020	0.00280	0.00330	0.00270	0.00340	0.00410	<0.0020	<0.0020
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	0.00120	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	0.00120	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	5.61	6.55	1.43	9.09	1.91	2.03	1.46	1.63	1.41	2.24	2.25	6.46	7.18	1.96	1.93
Dissolved Organic Carbon	5.48	5.48	1.49	8.95	1.89	2.13	1.68	1.78	1.46	2.56	2.30	7.04	7.17	2.74	2.20
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0105	0.0121	0.0123	0.0824	0.0468	0.00960	0.0144	0.0183	0.0261	0.0309	0.0197	0.0369	0.0799	0.0171	0.0186
Antimony (Sb)	<0.00010	<0.00010	<0.00010	0.000130	0.0001	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	0.000110	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000270	0.000260	0.000170	0.000390	0.000320	0.000280	0.000170	0.000170	0.000230	0.000400	0.000380	0.000660	0.000280	0.000300	0.000160
Barium (Ba)	0.0604	0.0598	0.0677	0.0843	0.0416	0.0427	0.0653	0.0586	0.0440	0.0348	0.0367	0.0999	0.0638	0.0397	0.0575
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	0.0110	0.0170	0.0180	<0.010	<0.010	<0.010	0.0210	0.0220	0.0200	0.01000	0.0190	<0.010
Cadmium (Cd)	0.0000088	0.0000082	0.0000057	<0.0000050	<0.0000050	<0.0000050	0.0000074	0.0000051	0.0000068	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000051
Calcium (Ca)	24.5	22.9	24.1	41.9	33.1	32.6	24.6	27.5	18.2	26.4	28.0	25.1	28.5	31.6	28.0
Chromium (Cr)	<0.00010	<0.00010	0.000110	0.000230	0.000220	0.000220	0.000160	0.000120	0.000130	0.000430	0.000420	0.000320	0.000210	0.000380	0.000220
Cobalt (Co)	<0.00010	<0.00010	<0.00010	0.000140	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010
Copper (Cu)	0.00108	0.00115	0.000890	0.00181	0.000880	0.000840	0.000910	0.000770	0.000540	0.000910	0.000870	0.001000	0.00125	0.000850	0.000830
Iron (Fe)	<0.030	<0.030	<0.030	0.113	0.0620	<0.030	<0.030	<0.030	0.188	<0.030	<0.030	0.0340	0.0810	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	0.00140	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00160	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	8.22	7.90	3.81	23.1	6.81	7.09	4.45	5.60	3.12	4.85	5.96	15.1	14.9	6.56	5.67

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS16	WQS17	WQS13	WQS03-DS	WQS04B	WQS04B	WQS06-US	WQS05	WQS09	WQS01	WQS02	WQS03	WQS03-DS	WQS04B	WQS05
Date	11-Dec-2018	11-Dec-2018	11-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019
Time	12:45:00 PM	12:30:00 PM	11:40:00 AM	10:00:00 AM	12:00:00 AM	9:00:00 AM	10:30:00 AM	9:15:00 AM	9:45:00 AM	10:30:00 AM	9:25:00 AM	11:15:00 AM	10:00:00 AM	4:20:00 PM	4:45:00 PM
QA/QC	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2210255-9	L2210255-10	L2210255-17	L2210255-4	L2210255-20	L2210255-6	L2210255-7	L2210255-8	L2210255-12	L2224631-1	L2224631-2	L2224631-3	L2224631-4	L2224631-6	L2224631-8
Total Metals (cont'd)															
Manganese (Mn)	0.000270	0.000490	0.000560	0.00294	0.00677	0.00451	0.00101	0.00346	0.0235	0.00115	0.00277	0.00106	0.00241	0.00224	0.00261
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000114	0.000102	0.000517	0.000246	0.000176	0.000166	0.000514	0.000386	0.000481	0.000139	0.000182	0.000312	0.000251	0.000184	0.000414
Nickel (Ni)	<0.00050	<0.00050	<0.00050	0.00138	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000770	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.363	0.346	0.316	0.819	0.252	0.258	0.335	0.352	0.296	0.169	0.177	0.342	0.525	0.232	0.340
Selenium (Se)	0.0000570	0.0000550	0.000150	0.0000830	<0.000050	<0.000050	0.000122	0.0000780	0.0000870	0.0000520	<0.000050	<0.000050	<0.000050	<0.000050	0.0000540
Silicon (Si)	3.21	3.18	2.49	3.31	3.41	3.47	2.46	2.64	3.31	3.52	3.43	3.34	3.10	3.36	2.65
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2.80	2.70	2.10	18.8	5.00	4.90	2.60	3.90	2.20	4.80	5.20	9.50	11.6	5.40	4.60
Strontium (Sr)	0.0637	0.0619	0.0762	0.226	0.143	0.144	0.0806	0.104	0.0820	0.127	0.139	0.191	0.162	0.140	0.106
Sulphur (S)	5.05	5.16	10.7	18.6	2.37	2.36	10.9	10.8	2.80	0.950	1.02	0.560	4.70	1.90	8.57
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000230	0.0000160	0.0000560	0.000296	0.000223	0.000226	0.0000640	0.0000920	0.0000610	0.000219	0.000205	0.0001	0.000182	0.000209	0.000111
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	0.000530	<0.00050	<0.00050	<0.00050	<0.00050	0.000820	0.000800	0.000520	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.00890	0.0107	0.00350	0.00810	0.00880	0.0381	0.00340	0.00480	0.00560	0.00920	0.00760	0.0226	0.0119	0.00750	0.00540
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000220	0.000240	0.000150	0.000330	0.000240	0.000270	0.000130	0.000110	0.000160	0.000390	0.000370	0.000640	0.000240	0.000270	0.000130
Barium (Ba)	0.0656	0.0646	0.0728	0.0842	0.0447	0.0692	0.0633	0.0471	0.0364	0.0376	0.0340	0.0634	0.0426	0.0426	0.0586
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	0.01000	0.0160	0.0160	<0.010	<0.010	<0.010	0.0200	0.0220	0.0210	0.0110	0.0180	<0.010
Cadmium (Cd)	0.0000086	0.0000102	0.0000095	<0.0000050	<0.0000050	<0.0000050	0.0000060	<0.0000050	0.0000055	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000051
Calcium (Ca)	24.8	23.2	24.8	43.0	33.5	33.4	25.5	29.5	18.3	26.9	27.0	25.5	29.4	31.3	26.6
Chromium (Cr)	<0.00010	<0.00010	<0.00010	0.000190	0.000190	0.000220	0.000130	<0.00010	0.000110	0.000340	0.000480	0.000220	0.000360	0.000330	0.000170
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00113	0.00121	0.000830	0.00167	0.000790	0.000880	0.00114	0.000810	<0.00050	0.000830	0.000850	0.000920	0.00112	0.000790	0.000760
Iron (Fe)	<0.030	<0.030	<0.030	<0.030	<0.030	0.0560	<0.030	<0.030	0.106	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	0.00140	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00170	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	8.65	7.92	3.91	23.1	7.07	7.01	4.27	5.83	3.15	4.45	5.76	14.7	14.4	6.48	5.30
Manganese (Mn)	<0.00010	0.000230	0.000130	0.000610	0.00440	0.00587	0.000320	0.00317	0.0231	0.000380	0.00207	0.000490	0.000680	0.00195	0.00203
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000113	0.000108	0.000520	0.000225	0.000186	0.000199	0.000523	0.000409	0.000514	0.000150	0.000158	0.000323	0.000245	0.000204	0.000380
Nickel (Ni)	<0.00050	<0.00050	<0.00050	0.00129	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000720	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.367	0.347	0.317	0.818	0.246	0.255	0.341	0.366	0.288	0.178	0.194	0.370	0.546	0.249	0.358
Selenium (Se)	<0.000050	<0.000050	0.000129	0.0000840	<0.000050	<0.000050	0.0001	0.0000700	0.0000920	<0.000050	<0.000050	<0.000050	0.0000520	<0.000050	0.0000550
Silicon (Si)	3.21	3.22	2.49	3.15	3.40	3.53	2.43	2.57	3.33	3.70	3.69	3.63	3.26	3.54	2.68
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2.90	2.80	2.30	20.2	5.40	5.40	2.80	4.50	2.40	4.20	4.90	8.70	10.4	4.90	4.00
Strontium (Sr)	0.0687	0.0655	0.0820	0.232	0.151	0.152	0.0823	0.109	0.0857	0.130	0.128	0.184	0.162	0.138	0.0962
Sulphur (S)	4.72	4.64	11.1	18.7	2.19	2.58	10.8	10.5	2.68	1.08	1.19	0.800	5.12	2.17	8.52
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000160	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000230	0.0000150	0.0000560	0.000297	0.000214	0.000210	0.0000650	0.0000910	0.0000570	0.000216	0.000197	0.0000990	0.000173	0.000214	0.000101
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000670	0.000670	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00140	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	<0.0010	<0.0010
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS16	WQS17	WQS13	WQS03-DS	WQS04B	WQS04B	WQS06-US	WQS05	WQS09	WQS01	WQS02	WQS03	WQS03-DS	WQS04B	WQS05
Date	11-Dec-2018	11-Dec-2018	11-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	12-Dec-2018	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019
Time	12:45:00 PM	12:30:00 PM	11:40:00 AM	10:00:00 AM	12:00:00 AM	9:00:00 AM	10:30:00 AM	9:15:00 AM	9:45:00 AM	10:30:00 AM	9:25:00 AM	11:15:00 AM	10:00:00 AM	4:20:00 PM	4:45:00 PM
QAQC	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2210255-9	L2210255-10	L2210255-17	L2210255-4	L2210255-20	L2210255-6	L2210255-7	L2210255-8	L2210255-12	L2224631-1	L2224631-2	L2224631-3	L2224631-4	L2224631-6	L2224631-8
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	94.8	90.0	92.4	79.2	94.0	94.8	87.1	89.2	87.4	89.4	86.0	88.2	83.4	85.7	81.7
Chrysene d12	102	103	99.1	94.2	104	97.9	102	96.8	94.6	98.1	99.6	106	98.2	94.0	95.3
Naphthalene d8	98.7	102	98.7	91.1	102	95.9	101	96.3	92.6	95.4	93.9	92.3	91.5	90.0	93.9
Phenanthrene d10	98.5	97.9	95.0	92.9	99.8	93.4	97.4	93.8	90.9	107	107	107	104	100	105
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.00130	0.00140	0.001000	0.00310	0.00160	0.00170	0.00120	0.00120	0.00130	0.00710	0.00590	0.00190	0.00150	0.0124	0.0120
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	99.3	95.7	92.7	95.3	97.5	94.6	99.3	93.6	93.1	82.7	83.6	87.6	82.7	85.6	92.0
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS06	WQS06-US	WQS08	WQS09	WQS10	WQS10	WQS11	WQS11-US	WQS12	WQS13	WQS13	WQS16	WQS17	WQS01	WQS02
Date	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	19-Feb-2019	19-Feb-2019
Time	10:50:00 AM	9:40:00 AM	1:50:00 PM	11:15:00 AM	12:00:00 AM	12:15:00 PM	2:20:00 PM	1:00:00 PM	3:40:00 PM	12:00:00 AM	12:15:00 PM	1:30:00 PM	1:10:00 PM	11:45:00 AM	11:15:00 AM
QAQC	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular
ALS Sample ID	L2224631-5	L2224631-7	L2224631-11	L2224631-12	L2224631-20	L2224631-13	L2224631-14	L2224631-15	L2224631-16	L2224631-21	L2224631-17	L2224631-9	L2224631-10	L2235919-1	L2235919-2
<i>In Situ</i>															
Temperature (°C)	0.20	0.10	0.55	0.20	0.20	0.20	0.10	0.30	0.30	0.20	0.20	0.10	0.10	0.00	0.20
pH	7.98	7.92	787	7.87	7.91	7.91	7.91	7.87	7.85	7.89	7.89	7.75	7.64	7.84	7.83
Conductivity (µS/cm)	93.8	83.1	48.5	55.4	56.6	56.6	33.8	34.3	37.5	78.0	78.0	85.5	83.3	84.6	94.6
Specific Conductivity (µS/cm)	180	158	92.8	106	108	108	64.7	65.6	71.8	148	148	162	158	162	180
Dissolved Oxygen (mg/L)	13.7	13.4	13.6	13.6	13.7	13.7	14.0	13.9	13.7	13.0	13.0	12.8	12.6	13.2	13.2
Dissolved Oxygen %	93.6	92.5	93.0	93.0	93.5	93.5	95.5	95.3	94.0	89.4	89.4	88.2	87.0	90.4	90.0
ORP	170	140	136	125	122	122	118	125	124	101	101	111	109	158	167
Turbidity (NTU)	17.35	-0.08	0.88	0.87	0.99	0.99	1.03	0.6	0.67	0	0	-0.22	-0.24	-0.26	-0.51
Physical Tests															
Colour, True	<5.0	<5.0	9.50	10.5	7.20	8.60	5.20	<5.0	5.30	<5.0	<5.0	9.10	9.50	<5.0	<5.0
Conductivity (µS/cm)	196	174	109	116	118	119	71.3	73.1	79.1	161	162	178	175	178	200
Hardness (as CaCO ₃)	89.4	80.0	48.5	51.2	55.2	53.7	30.2	32.0	32.3	72.4	73.4	83.4	77.8	88.8	97.4
pH	7.95	7.90	7.80	7.85	7.87	7.88	7.77	7.70	7.76	7.89	7.86	7.85	7.78	8.12	8.22
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	126	103	63.0	80.0	72.0	72.0	47.0	46.0	51.0	93.0	98.0	101	109	104	113
Turbidity (NTU)	0.500	0.280	1.21	1.16	1.27	1.27	1.43	0.830	1.27	0.310	0.330	0.170	0.190	0.480	0.280
Acidity (as CaCO ₃)	2.40	2.40	2.70	2.50	2.40	2.40	2.10	2.30	2.20	2.40	2.60	3.10	3.50	<1.0	1.10
Alkalinity, Total (as CaCO ₃)	66.5	60.2	51.1	53.0	55.5	54.4	31.5	32.7	34.8	55.7	55.5	77.6	74.3	88.0	100.0
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.500	<0.50	<0.50	0.510	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0390	0.0340	0.0360	0.0350	0.0360	0.0360	0.0270	0.0270	0.0280	0.0310	0.0330	0.0510	0.0530	0.0350	0.0410
Sulphate (SO ₄)	32.1	26.6	5.76	6.71	6.76	6.75	4.46	4.41	4.81	25.3	25.3	14.2	14.2	3.11	3.54
Nutrients															
Total Nitrogen	0.163	0.173	0.101	0.169	0.130	0.114	0.1000	0.0920	0.1000	0.153	0.170	0.562	0.561	0.117	0.124
Total Kjeldahl Nitrogen	<0.050	<0.050	<0.050	<0.050	0.0630	<0.050	<0.050	<0.050	0.0580	<0.050	<0.050	0.199	0.198	<0.050	<0.050
Ammonia as N	<0.0050	0.00900	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.00720
Nitrate (as N)	0.124	0.124	0.0554	0.0586	0.0598	0.0589	0.0246	0.0322	0.0315	0.126	0.124	0.439	0.445	0.0820	0.0795
Nitrite (as N)	<0.0010	<0.0010	0.00210	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	<0.0020	<0.0020	0.00360	0.00360	0.00380	0.00380	0.00590	0.00320	0.00370	<0.0020	<0.0020	0.00230	0.00410	0.00230	<0.0020
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	2.00	2.01	2.33	1.89	1.97	1.96	2.28	2.37	2.38	1.96	1.66	5.09	5.56	1.41	1.89
Dissolved Organic Carbon	2.06	1.79	2.23	2.05	1.93	1.91	2.41	2.34	2.36	1.88	2.24	5.29	5.04	1.41	1.64
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0168	0.0133	0.0284	0.0339	0.0360	0.0417	0.0529	0.0392	0.0479	0.0155	0.0137	0.0120	0.0159	0.0164	0.00960
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000120	0.000160	0.000220	0.000200	0.000220	0.000210	0.000170	0.000160	0.000210	0.000170	0.000170	0.000250	0.000230	0.000390	0.000330
Barium (Ba)	0.0631	0.0657	0.0403	0.0403	0.0390	0.0395	0.0211	0.0236	0.0248	0.0721	0.0666	0.0569	0.0584	0.0342	0.0373
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0220	0.0240
Cadmium (Cd)	<0.000050	0.0000062	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000057	0.0000057	0.0000079	0.0000076	0.0000100	<0.0000050	<0.0000050
Calcium (Ca)	27.1	25.9	15.9	16.4	16.8	16.9	9.98	10.2	11.1	25.5	23.5	22.2	22.0	26.9	27.7
Chromium (Cr)	0.0001	<0.00010	0.000280	0.000170	0.000180	0.000200	0.000730	0.000710	0.000200	0.000130	0.000120	0.000150	0.000150	0.000450	0.000410
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000800	0.000890	0.000720	0.000650	0.000630	0.000680	0.000680	0.000650	0.000680	0.000680	0.000910	0.000990	0.00102	0.000640	0.000630
Iron (Fe)	<0.030	<0.030	0.292	0.281	0.256	0.263	0.0950	0.0740	0.103	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	5.56	4.38	2.77	2.89	3.03	3.03	1.47	1.58	1.71	4.09	3.83	7.63	7.73	4.56	5.67

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS06	WQS06-US	WQS08	WQS09	WQS10	WQS10	WQS11	WQS11-US	WQS12	WQS13	WQS13	WQS16	WQS17	WQS01	WQS02
Date	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	19-Feb-2019	19-Feb-2019
Time	10:50:00 AM	9:40:00 AM	1:50:00 PM	11:15:00 AM	12:00:00 AM	12:15:00 PM	2:20:00 PM	1:00:00 PM	3:40:00 PM	12:00:00 AM	12:15:00 PM	1:30:00 PM	1:10:00 PM	11:45:00 AM	11:15:00 AM
QA/QC	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular
ALS Sample ID	L2224631-5	L2224631-7	L2224631-11	L2224631-12	L2224631-20	L2224631-13	L2224631-14	L2224631-15	L2224631-16	L2224631-21	L2224631-17	L2224631-9	L2224631-10	L2235919-1	L2235919-2
Total Metals (cont'd)															
Manganese (Mn)	0.00251	0.000600	0.0108	0.00815	0.00947	0.00946	0.0120	0.00858	0.0104	0.000380	0.000420	0.000200	0.000370	0.000460	0.00170
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000488	0.000566	0.000450	0.000455	0.000442	0.000466	0.000356	0.000335	0.000378	0.000562	0.000526	0.000125	0.000109	0.000136	0.000172
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.373	0.331	0.257	0.263	0.263	0.268	0.288	0.303	0.282	0.302	0.333	0.339	0.165	0.165	0.170
Selenium (Se)	0.0000700	0.0000810	0.0000800	0.0000610	0.0000890	0.0000810	<0.000050	<0.000050	<0.000050	0.0000700	0.0000850	<0.000050	<0.000050	0.0000590	<0.000050
Silicon (Si)	2.43	2.47	3.51	3.42	3.34	3.34	2.17	2.12	2.34	2.54	2.46	3.13	3.05	3.14	3.22
Silver (Ag)	0.0000130	<0.000010	<0.000010	0.0000140	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	4.30	3.10	2.30	2.40	2.40	2.50	<2.0	<2.0	<2.0	2.40	2.50	3.00	3.00	4.50	4.70
Strontium (Sr)	0.0946	0.0830	0.0771	0.0774	0.0781	0.0781	0.0441	0.0459	0.0513	0.0851	0.0768	0.0639	0.0619	0.126	0.138
Sulphur (S)	10.7	8.94	1.69	2.02	1.98	1.89	1.19	1.21	1.36	8.60	8.08	4.56	4.49	0.780	0.920
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000760	0.0000870	0.0000530	0.0000560	0.0000600	0.0000610	0.0000330	0.0000310	0.0000390	0.0000780	0.0000730	0.0000250	0.0000190	0.000233	0.000221
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000690	0.000700
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.00420	0.00400	0.0109	0.0103	0.0101	0.00920	0.0106	0.0102	0.0103	0.00450	0.00450	0.00930	0.00910	0.00330	<0.0030
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	<0.00010	0.000130	0.000170	0.000180	0.000160	0.000170	0.000140	0.000130	0.000130	0.000140	0.000150	0.000220	0.000200	0.000350	0.000320
Barium (Ba)	0.0641	0.0689	0.0401	0.0405	0.0414	0.0405	0.0217	0.0254	0.0686	0.0686	0.0583	0.0568	0.0377	0.0377	0.0395
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0190	0.0210
Cadmium (Cd)	0.0000109	0.0000067	0.0000065	<0.0000050	<0.0000050	0.0000051	<0.0000050	<0.0000050	<0.0000050	0.0000064	0.0000092	0.0000107	0.0000083	<0.0000050	<0.0000050
Calcium (Ca)	27.4	25.1	15.2	16.0	17.5	16.6	9.67	10.2	10.3	23.1	23.3	21.5	19.9	27.9	29.6
Chromium (Cr)	0.000120	0.000140	0.000140	0.000170	0.000110	0.000160	0.000320	<0.00010	0.000390	<0.00010	<0.00010	0.000130	0.000160	0.000320	0.000330
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000790	0.000860	0.000600	0.000680	0.000550	0.000560	0.000560	0.000560	0.000550	0.000900	0.000890	0.000960	0.000940	0.000510	0.000520
Iron (Fe)	<0.030	<0.030	0.199	0.177	0.159	0.159	0.0400	0.0380	0.0510	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	5.10	4.19	2.54	2.73	2.83	2.95	1.46	1.57	1.62	3.58	3.68	7.22	6.85	4.62	5.67
Manganese (Mn)	0.00202	0.000270	0.00915	0.00655	0.00743	0.00767	0.00935	0.00725	0.00737	<0.00010	0.000140	<0.00010	0.000180	<0.00010	0.000410
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000489	0.000542	0.000429	0.000415	0.000432	0.000450	0.000347	0.000312	0.000372	0.000530	0.000534	0.000118	0.000108	0.000115	0.000159
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.394	0.358	0.268	0.279	0.284	0.279	0.305	0.309	0.303	0.317	0.319	0.352	0.346	0.157	0.172
Selenium (Se)	0.0000710	0.0000960	0.0000970	0.000105	0.0000660	0.0000710	<0.000050	<0.000050	<0.000050	0.0000860	0.0000890	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)	2.50	2.63	3.48	3.42	3.49	3.48	2.21	2.22	2.33	2.54	2.59	3.17	3.25	3.20	3.20
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	3.70	2.70	<2.0	2.20	2.20	2.20	<2.0	<2.0	<2.0	2.10	2.20	2.60	2.50	4.30	4.90
Strontium (Sr)	0.0913	0.0820	0.0689	0.0686	0.0789	0.0781	0.0446	0.0464	0.0504	0.0767	0.0739	0.0584	0.0558	0.135	0.153
Sulphur (S)	12.1	9.09	1.74	2.02	2.17	2.15	1.44	1.48	1.49	8.13	8.43	4.84	4.62	1.05	1.07
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	0.000280	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000710	0.0000800	0.0000470	0.0000520	0.0000530	0.0000580	0.0000290	0.0000300	0.0000330	0.0000690	0.0000640	0.0000240	0.0000160	0.000225	0.000215
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000660	0.000680
Zinc (Zn)	<0.0010	<0.0010	0.00380	0.00250	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00190	<0.0010	<0.0010
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000	

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS06	WQS06-US	WQS08	WQS09	WQS10	WQS10	WQS11	WQS11-US	WQS12	WQS13	WQS13	WQS16	WQS17	WQS01	WQS02
Date	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	22-Jan-2019	19-Feb-2019	19-Feb-2019
Time	10:50:00 AM	9:40:00 AM	1:50:00 PM	11:15:00 AM	12:00:00 AM	12:15:00 PM	2:20:00 PM	1:00:00 PM	3:40:00 PM	12:00:00 AM	12:15:00 PM	1:30:00 PM	1:10:00 PM	11:45:00 AM	11:15:00 AM
QAQC	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular
ALS Sample ID	L2224631-5	L2224631-7	L2224631-11	L2224631-12	L2224631-20	L2224631-13	L2224631-14	L2224631-15	L2224631-16	L2224631-21	L2224631-17	L2224631-9	L2224631-10	L2235919-1	L2235919-2
Polycyclic Aromatic Hydrocarbons <i>(cont'd)</i>															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	76.4	91.5	84.4	89.9	84.0	89.6	89.5	92.1	82.7	82.3	81.7	78.3	85.0	89.0	86.2
Chrysene d12	104	104	98.5	101	103	95.5	98.0	107	93.5	92.0	91.1	91.6	104	95.2	93.7
Naphthalene d8	95.8	95.3	87.8	95.4	94.2	90.8	89.7	99.9	87.4	87.7	92.3	86.2	94.8	90.5	91.0
Phenanthrene d10	111	107	103	107	107	105	103	113	99.2	98.6	99.4	94.5	107	92.5	93.0
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.0118	0.00580	0.0199	0.00490	0.00190	0.00450	0.00130	0.00340	0.00470	0.00500	0.00520	0.00590	0.00670	0.00300	0.00340
Volatile Organic Compounds															
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00045	<0.00045
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00075	<0.00075
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	83.8	84.4
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	87.4	101
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-
EPH19-32	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-
LEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-
HEPH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-
2-Bromobenzotrifluoride	87.5	84.9	81.2	87.7	92.8	85.1	83.7	87.7	77.9	82.6	91.9	82.6	95.2	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS03	WQS11	WQS12	WQS13	WQS16	WQS17	WQS06	WQS08	WQS08	WQS03-DS	WQS04B	WQS05	WQS05	WQS06-US	WQS09
Date	19-Feb-2019	19-Feb-2019	19-Feb-2019	19-Feb-2019	19-Feb-2019	19-Feb-2019	20-Feb-2019	20-Feb-2019	20-Feb-2019	21-Feb-2019	21-Feb-2019	21-Feb-2019	21-Feb-2019	21-Feb-2019	21-Feb-2019
Time	12:25:00 PM	2:58:00 PM	3:55:00 PM	1:05:00 PM	2:15:00 PM	1:50:00 PM	11:55:00 AM	12:00:00 AM	1:50:00 PM	2:20:00 PM	12:40:00 PM	NA	12:20:00 PM	2:50:00 PM	11:30:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular
ALS Sample ID	L2235919-3	L2235919-14	L2235919-16	L2235919-17	L2235919-9	L2235919-10	L2235919-5	L2235919-21	L2235919-11	L2235919-4	L2235919-6	L2235919-20	L2235919-8	L2235919-7	L2235919-12
<i>In Situ</i>															
Temperature (°C)	-0.10	-0.10	0.00	0.10	0.00	0.00	0.00	-0.10	-0.10	-0.10	0.00	-0.10	-0.10	0.00	-0.10
pH	7.98	7.31	7.36	7.73	7.32	7.30	7.72	7.26	7.26	7.82	7.94	7.81	7.81	7.81	7.40
Conductivity (µS/cm)	134	35.0	38.8	78.0	83.4	81.1	96.3	52.7	52.7	152	104	98.3	98.3	85.5	56.4
Specific Conductivity (µS/cm)	259	67.1	72.8	151	83.4	156	184	101	101	292	200	189	189	164	108
Dissolved Oxygen (mg/L)	13.0	13.7	13.6	13.2	12.2	11.9	13.8	13.7	13.7	13.3	13.8	13.9	13.9	13.5	13.8
Dissolved Oxygen %	88.7	93.4	92.9	90.2	83.2	81.5	94.6	93.4	93.4	90.7	94.2	94.6	94.6	92.4	94.2
ORP	158	176	176	155	165	207	120	143	143	161	139	146	146	120	159
Turbidity (NTU)	-0.5	0.09	-0.08	-0.47	-0.46	-0.62	-0.08	0.34	0.34	1.07	-0.23	0.39	0.39	0.5	0.22
Physical Tests															
Colour, True	13.4	5.30	5.60	<5.0	9.60	10.00	<5.0	5.10	<5.0	17.0	<5.0	<5.0	<5.0	<5.0	5.40
Conductivity (µS/cm)	281	71.5	77.6	166	177	172	204	115	114	320	222	214	211	183	123
Hardness (as CaCO ₃)	139	31.1	35.2	84.8	84.2	83.1	103	52.0	54.6	162	116	103	102	92.4	59.6
pH	8.27	7.62	7.64	7.85	7.82	7.72	8.04	7.85	7.85	8.32	8.25	8.11	8.09	7.98	7.92
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	155	45.0	55.0	101	105	103	136	73.0	68.0	183	144	128	131	111	71.0
Turbidity (NTU)	0.300	0.770	0.660	0.270	0.280	0.240	0.300	1.06	1.02	1.86	0.370	0.340	0.320	0.230	0.890
Acidity (as CaCO ₃)	<1.0	2.30	2.20	2.30	2.40	3.00	1.90	2.30	2.20	3.30	<1.0	1.90	1.80	2.10	2.10
Alkalinity, Total (as CaCO ₃)	160	32.5	36.3	56.4	76.7	74.7	61.0	53.5	52.2	153	111	82.1	80.1	64.6	56.4
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	0.510	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0720	0.0250	0.0250	0.0290	0.0450	0.0480	0.0350	0.0320	0.0330	0.0550	0.0390	0.0370	0.0360	0.0310	0.0340
Sulphate (SO ₄)	2.57	4.49	4.79	27.8	14.2	14.0	35.2	5.57	5.59	22.2	6.93	28.6	28.7	29.2	6.92
Nutrients															
Total Nitrogen	0.181	0.118	0.0940	0.173	0.565	0.549	0.180	0.110	0.103	0.283	0.120	0.155	0.164	0.188	0.108
Total Kjeldahl Nitrogen	0.0810	<0.050	0.0560	<0.050	0.190	0.210	<0.050	0.0500	0.0510	0.165	0.0560	0.0530	0.0530	<0.050	<0.050
Ammonia as N	<0.0050	0.00840	0.00580	<0.0050	0.00720	0.0153	0.00610	0.00750	0.00880	0.0168	0.00520	0.00670	<0.0050	<0.0050	0.00760
Nitrate (as N)	0.0917	0.0474	0.0521	0.151	0.440	0.455	0.142	0.0652	0.0682	0.134	0.0774	0.130	0.127	0.157	0.0728
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.00250	0.00420	0.00260	<0.0020	0.00220	0.00240	<0.0020	0.00350	0.00330	0.00400	<0.0020	<0.0020	<0.0020	<0.0020	0.00200
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon															
Total Organic Carbon	4.13	2.45	2.03	1.31	4.46	4.92	1.73	1.34	1.18	6.47	1.82	1.65	1.77	1.43	1.61
Dissolved Organic Carbon	3.92	1.87	1.82	1.37	4.50	4.59	1.79	1.35	1.19	6.39	1.52	1.52	1.52	1.44	1.03
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0211	0.0393	0.0286	0.00960	0.0236	0.0295	0.0121	0.0215	0.0210	0.0685	0.0182	0.0111	0.0120	0.00910	0.0156
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000630	0.000210	0.000130	0.000130	0.000230	0.000320	<0.00010	0.000180	0.000160	0.000250	0.000250	0.000130	0.000140	0.000130	0.000150
Barium (Ba)	0.1000	0.0243	0.0260	0.0698	0.0577	0.0581	0.0665	0.0410	0.0430	0.0707	0.0399	0.0579	0.0590	0.0669	0.0417
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0200	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0110	0.0190	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	0.0000068	0.0000090	0.0000098	<0.0000050	<0.0000050	<0.0000050	0.0000055	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	28.8	10.3	21.9	23.6	23.3	21.9	28.8	16.3	17.8	31.9	32.4	29.2	27.1	26.4	16.8
Chromium (Cr)	0.000300	0.0001	0.000130	0.000110	0.000130	0.0001	0.000140	0.000280	0.000170	0.000200	0.000270	0.000180	0.0001	<0.00010	0.000140
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000600	0.000670	0.000560	0.000760	0.000910	0.000980	0.000680	0.000520	0.000590	0.00118	0.000730	0.000710	0.000670	0.000760	<0.00050
Iron (Fe)	<0.030	0.0740	0.0650	<0.030	<0.030	0.0340	<0.030	0.218	0.215	0.0780	<0.030	<0.030	<0.030	<0.030	0.172
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.00180	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	14.9	1.57	1.79	3.79	7.05	6.68	5.40	2.71	2.59	15.3	6.38	5.36	5.49	4.16	2.74

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS03	WQS11	WQS12	WQS13	WQS16	WQS17	WQS06	WQS08	WQS08	WQS03-DS	WQS04B	WQS05	WQS05	WQS06-US	WQS09
Date	19-Feb-2019	19-Feb-2019	19-Feb-2019	19-Feb-2019	19-Feb-2019	19-Feb-2019	20-Feb-2019	20-Feb-2019	20-Feb-2019	21-Feb-2019	21-Feb-2019	21-Feb-2019	21-Feb-2019	21-Feb-2019	21-Feb-2019
Time	12:25:00 PM	2:58:00 PM	3:55:00 PM	1:05:00 PM	2:15:00 PM	1:50:00 PM	11:55:00 AM	12:00:00 AM	1:50:00 PM	2:20:00 PM	12:40:00 PM	NA	12:20:00 PM	2:50:00 PM	11:30:00 AM
QA/QC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular
ALS Sample ID	L2235919-3	L2235919-14	L2235919-16	L2235919-17	L2235919-9	L2235919-10	L2235919-5	L2235919-21	L2235919-11	L2235919-4	L2235919-6	L2235919-20	L2235919-8	L2235919-7	L2235919-12
Total Metals (cont'd)															
Manganese (Mn)	0.000620	0.00500	0.00378	0.000260	0.000930	0.00167	0.00217	0.00923	0.00929	0.00173	0.00206	0.00203	0.00186	0.000400	0.00549
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000381	0.000305	0.000356	0.000537	0.000120	0.0000950	0.000470	0.000423	0.000458	0.000230	0.000196	0.000387	0.000371	0.000556	0.000442
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000850	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.364	0.313	0.305	0.315	0.347	0.326	0.403	0.266	0.258	0.610	0.249	0.347	0.356	0.343	0.271
Selenium (Se)	<0.000050	0.0000600	<0.000050	0.0000760	<0.000050	0.0000540	0.0000830	0.0000910	0.0001	<0.000050	<0.000050	0.0000830	0.0000710	0.000116	0.000102
Silicon (Si)	3.09	2.40	2.42	2.38	2.98	3.02	2.34	3.48	3.69	3.11	3.29	2.50	2.52	2.25	3.33
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	10.6	<2.0	<2.0	2.40	2.60	2.60	4.40	2.10	2.10	12.8	5.10	4.50	4.50	3.00	2.20
Strontium (Sr)	0.205	0.0441	0.0504	0.0788	0.0636	0.0628	0.105	0.0744	0.0814	0.186	0.140	0.107	0.101	0.0862	0.0802
Sulphur (S)	0.630	1.33	1.41	8.73	4.41	4.36	11.5	1.54	1.70	7.29	1.98	8.95	9.07	8.91	2.03
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000127	0.0000260	0.0000310	0.0000790	0.0000230	0.0000150	0.0000870	0.0000490	0.0000520	0.000214	0.000237	0.000116	0.000115	0.0000980	0.0000580
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.0113	0.00630	0.00530	0.00960	0.00720	0.00770	0.00310	0.00600	0.00530	0.00800	0.00590	0.00370	0.00350	0.00420	0.00460
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000720	0.000140	0.000130	0.000110	0.000250	0.000220	<0.00010	0.000160	0.000200	0.000220	0.000240	0.000120	0.000130	<0.00010	0.000130
Barium (Ba)	0.107	0.0230	0.0272	0.0684	0.0628	0.0663	0.0416	0.0413	0.0712	0.0419	0.0615	0.0615	0.0592	0.0696	0.0438
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0170	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01000	0.0180	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	0.0000065	0.0000067	0.0000077	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	29.5	10.1	11.3	27.2	21.7	21.2	31.7	16.2	17.1	36.7	35.3	31.5	31.4	29.2	18.6
Chromium (Cr)	<0.00010	<0.00010	<0.00010	0.000230	<0.00010	<0.00010	0.000140	0.0001	0.000160	<0.00010	0.000240	0.000180	0.000390	0.000150	0.0001
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.000530	<0.00050	<0.00050	0.000770	0.000850	0.000940	0.000670	<0.00050	<0.00050	0.00106	0.000670	0.000700	0.000660	0.00105	<0.00050
Iron (Fe)	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.130	0.124	<0.030	<0.030	<0.030	<0.030	<0.030	0.105
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.00170	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00110	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	15.8	1.45	1.67	4.08	7.29	7.31	5.66	2.83	2.88	17.2	6.89	6.02	5.84	4.71	3.20
Manganese (Mn)	0.000110	0.00170	0.00161	0.000270	<0.00010	<0.00010	0.00192	0.00697	0.00686	0.000320	0.00149	0.00177	0.00167	0.000190	0.00451
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000360	0.000295	0.000351	0.000553	0.0000770	0.0000990	0.000434	0.000389	0.000392	0.000233	0.000194	0.000417	0.000350	0.000561	0.000411
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000760	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.339	0.285	0.293	0.322	0.317	0.307	0.408	0.265	0.274	0.623	0.246	0.365	0.361	0.364	0.280
Selenium (Se)	<0.000050	<0.000050	<0.000050	0.000110	<0.000050	<0.000050	0.0000890	0.0000880	0.0000810	<0.000050	<0.000050	0.0000550	0.0000670	0.0000860	0.0000680
Silicon (Si)	3.09	2.19	2.38	2.44	3.04	3.02	2.36	3.59	3.61	3.03	3.30	2.62	2.59	2.32	3.51
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	10.5	<2.0	<2.0	2.50	2.80	2.70	4.70	2.30	2.40	13.8	5.60	4.80	4.60	3.20	2.50
Strontium (Sr)	0.232	0.0496	0.0573	0.0842	0.0697	0.0678	0.105	0.0811	0.0802	0.191	0.159	0.118	0.116	0.0917	0.0865
Sulphur (S)	0.840	1.36	1.65	8.43	4.45	4.36	10.8	1.42	1.61	6.87	1.89	9.27	8.86	8.41	2.09
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000126	0.0000250	0.0000280	0.0000840	0.0000220	0.0000140	0.0000930	0.0000510	0.0000520	0.000234	0.000262	0.000135	0.000136	0.000110	0.0000600
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00200	<0.0010	0.00120	<0.0010
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

[illegible]

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS10	WQS11-US	WQS06	WQS08	WQS11-US	WQS01	WQS02	WQS03	WQS11	WQS11-US	WQS13	WQS16	WQS17	WQS05	WQS03-DS
Date	21-Feb-2019	21-Feb-2019	11-Mar-2019	11-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	13-Mar-2019	13-Mar-2019
Time	10:50:00 AM	10:00:00 AM	1:00:00 PM	4:20:00 PM	12:00:00 AM	11:20:00 AM	9:45:00 AM	11:55:00 AM	2:20:00 PM	3:55:00 PM	12:30:00 PM	1:25:00 PM	1:05:00 PM	12:00:00 AM	1:35:00 PM
QAQC	Regular	Regular	Regular	Regular	Field Duplicate	Regular	Regular	Regular	Regular	Field Duplicate	Regular	Regular	Regular	Field Duplicate	Regular
ALS Sample ID	L2235919-13	L2235919-15	L2244461-5	L2244461-11	L2244461-21	L2244461-1	L2244461-2	L2244461-3	L2244461-14	L2244461-15	L2244461-17	L2244461-9	L2244461-10	L2244461-20	L2244461-4
<i>In Situ</i>															
Temperature (°C)	-0.10	-0.10	0.00	0.00	-	0.00	0.30	0.00	0.00	0.00	0.20	0.00	0.00	-	0.30
pH	7.36	7.34	7.25	7.32	-	7.92	7.92	8.06	7.35	7.31	7.62	7.39	7.28	-	8.07
Conductivity (µS/cm)	58.0	33.8	107	59.5	-	92.7	104	160	38.6	30.8	87.9	92.7	90.0	-	215
Specific Conductivity (µS/cm)	111	64.9	205	114	-	178	198	307	74.0	59.3	167	178	172	-	407
Dissolved Oxygen (mg/L)	13.7	13.3	13.4	13.3	-	13.1	13.0	12.8	12.7	12.9	12.8	11.9	11.1	-	13.1
Dissolved Oxygen %	93.6	90.9	91.4	91.0	-	89.4	89.8	87.3	86.8	88.1	88.1	81.2	75.8	-	90.6
ORP	159	149	205	227	-	218	193	204	183	183	185	214	206	-	160
Turbidity (NTU)	0.24	0.11	0.9	1.61	-	1.05	0.85	0.76	0.95	0.94	0.78	0.87	0.69	-	2.4
Physical Tests															
Colour, True	<5.0	6.50	<5.0	<5.0	<5.0	<5.0	<5.0	11.4	<5.0	<5.0	<5.0	8.40	9.80	<5.0	17.9
Conductivity (µS/cm)	126	73.7	208	118	80.5	184	201	319	73.4	75.2	174	190	181	218	416
Hardness (as CaCO ₃)	60.7	34.3	92.1	53.6	32.7	87.1	96.7	156	32.9	33.2	79.4	103	85.1	95.2	195
pH	7.94	7.67	7.99	7.82	7.65	8.11	8.18	8.29	7.58	7.63	7.88	7.83	7.80	8.10	8.26
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.00	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	72.0	48.0	132	81.0	49.0	106	133	185	50.0	50.0	112	119	118	145	265
Turbidity (NTU)	0.920	1.01	0.280	0.860	0.440	0.390	0.270	0.280	0.380	0.430	0.190	0.160	0.230	0.380	1.83
Acidity (as CaCO ₃)	2.20	2.00	1.80	2.30	2.30	1.70	1.20	<1.0	2.50	2.20	2.10	2.90	3.10	1.40	<1.0
Alkalinity, Total (as CaCO ₃)	59.4	33.0	72.4	57.5	34.8	107	145	192	34.4	33.9	58.9	88.0	84.3	81.8	222
Anions															
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	0.660	<0.50	<0.50	<0.50	0.630	0.740	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0330	0.0240	0.0390	0.0370	0.0240	0.0410	0.0450	0.0870	0.0270	0.0280	0.0340	0.0450	0.0510	0.0410	0.0640
Sulphate (SO ₄)	6.77	4.42	38.3	6.21	4.15	3.46	3.99	3.55	4.62	4.78	30.1	15.6	15.2	30.0	41.7
Nutrients															
Total Nitrogen	0.0870	0.104	0.192	0.120	0.116	0.120	0.209	0.178	0.0990	0.120	0.194	0.587	0.585	0.162	0.329
Total Kjeldahl Nitrogen	<0.050	<0.050	<0.050	<0.050	0.0510	<0.050	<0.050	0.0700	<0.050	0.0510	<0.050	0.137	0.176	<0.050	0.180
Ammonia as N	0.00730	<0.0050	<0.0050	0.00850	0.00500	<0.0050	<0.0050	<0.0050	0.00910	0.00590	0.00590	0.00770	0.00530	<0.0050	0.00640
Nitrate (as N)	0.0729	0.0461	0.165	0.0765	0.0519	0.0939	0.0888	0.107	0.0516	0.0514	0.173	0.469	0.465	0.142	0.169
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00130	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00140
Total Phosphorus (as P)	0.00310	0.00430	<0.0020	0.00390	0.00280	0.00280	<0.0020	0.00240	0.00240	0.00300	<0.0020	<0.0020	<0.0020	<0.0020	0.00900
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00120	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00620
Carbon															
Total Organic Carbon	1.69	2.43	1.28	1.37	1.88	1.22	1.25	3.47	1.62	1.69	1.01	4.47	4.70	1.42	7.16
Dissolved Organic Carbon	1.28	2.06	1.51	1.12	1.59	1.30	1.26	3.29	1.51	1.59	1.09	4.47	4.59	1.05	7.03
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide															
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0225	0.0376	0.0140	0.0198	0.0192	0.0165	0.0122	0.0182	0.0189	0.0189	0.00960	0.0121	0.0134	0.0106	0.0468
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000170	0.000320	0.000130	0.000210	0.000200	0.000440	0.000350	0.000760	0.000180	0.000190	0.000150	0.000270	0.000220	0.000170	0.000330
Barium (Ba)	0.0420	0.0227	0.0670	0.0406	0.0235	0.0354	0.0366	0.109	0.0233	0.0229	0.0690	0.0607	0.0569	0.0571	0.0813
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	0.0240	0.0250	0.0200	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0120
Cadmium (Cd)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000067	<0.000050	0.0000087	0.0000066	<0.000050	<0.000050
Calcium (Ca)	16.7	10.3	30.1	16.9	11.4	28.1	30.1	31.1	11.2	11.2	24.4	25.7	22.2	29.6	43.0
Chromium (Cr)	0.000120	0.000280	<0.00010	0.000120	0.0001	0.000330	0.000410	0.000130	<0.00010	<0.00010	0.000190	<0.00010	0.0001	0.000130	0.000130
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	<0.00050	0.000590	0.000690	<0.00050	0.000560	0.000550	0.000810	0.000530	<0.00050	0.000560	0.000610	0.000940	0.000890	0.000560	0.00111
Iron (Fe)	0.156	0.0800	<0.030	0.206	0.0490	<0.030	<0.030	<0.030	0.0440	0.0510	<0.030	<0.030	<0.030	<0.030	0.0420
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000610	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00210	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00140
Magnesium (Mg)	2.86	1.49	5.50	2.72	1.67	4.80	6.11	19.7	1.68	1.62	3.59	7.51	6.80	5.63	20.1

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS10	WQS11-US	WQS06	WQS08	WQS11-US	WQS01	WQS02	WQS03	WQS11	WQS11-US	WQS13	WQS16	WQS17	WQS05	WQS03-DS
Date	21-Feb-2019	21-Feb-2019	11-Mar-2019	11-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	13-Mar-2019	13-Mar-2019
Time	10:50:00 AM	10:00:00 AM	1:00:00 PM	4:20:00 PM	12:00:00 AM	11:20:00 AM	9:45:00 AM	11:55:00 AM	2:20:00 PM	3:55:00 PM	12:30:00 PM	1:25:00 PM	1:05:00 PM	12:00:00 AM	1:35:00 PM
QA/QC	Regular	Regular	Regular	Regular	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Regular
ALS Sample ID	L2235919-13	L2235919-15	L2244461-5	L2244461-11	L2244461-21	L2244461-1	L2244461-2	L2244461-3	L2244461-14	L2244461-15	L2244461-17	L2244461-9	L2244461-10	L2244461-20	L2244461-4
Total Metals (cont'd)															
Manganese (Mn)	0.00658	0.00613	0.00230	0.0116	0.00483	0.000480	0.00187	0.000620	0.00348	0.00495	0.000250	0.000300	0.000530	0.00275	0.00310
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000432	0.000347	0.000480	0.000447	0.000353	0.000138	0.000191	0.000506	0.000359	0.000336	0.000570	0.0000940	0.0000710	0.000396	0.000235
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000750
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.275	0.303	0.440	0.292	0.343	0.193	0.202	0.410	0.337	0.334	0.336	0.372	0.342	0.379	1.01
Selenium (Se)	0.0000690	<0.000050	0.0000780	0.0000870	<0.000050	0.0000850	<0.000050	<0.000050	<0.000050	<0.000050	0.000103	<0.000050	<0.000050	0.0000640	0.0000560
Silicon (Si)	3.37	2.23	2.43	3.60	2.31	3.30	3.43	3.24	2.32	2.29	2.44	3.34	3.19	2.63	3.31
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2.30	<2.0	4.90	2.20	<2.0	5.00	5.20	13.4	<2.0	<2.0	2.50	2.80	2.60	4.80	19.0
Strontium (Sr)	0.0813	0.0413	0.104	0.0828	0.0477	0.128	0.140	0.226	0.0473	0.0460	0.0802	0.0661	0.0639	0.113	0.221
Sulphur (S)	1.78	0.780	12.4	1.67	1.24	0.890	1.000	1.15	1.26	1.19	9.39	4.85	4.71	9.56	13.6
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000610	0.0000310	0.0000990	0.0000630	0.0000320	0.000263	0.000256	0.000182	0.0000290	0.0000310	0.0000920	0.0000220	0.0000150	0.000155	0.000324
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000820	0.000870	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals															
Aluminum (Al)	0.00560	0.00850	<0.0030	0.00380	0.00530	<0.0030	0.00310	0.0119	0.00530	0.00490	<0.0030	0.00620	0.00710	<0.0030	0.00730
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000130	0.000130	<0.00010	0.000170	0.000120	0.000370	0.000340	0.000700	0.0001	0.000130	0.000130	0.000220	0.000200	0.000150	0.000270
Barium (Ba)	0.0412	0.0235	0.0657	0.0404	0.0223	0.0348	0.0372	0.106	0.0225	0.0233	0.0718	0.0657	0.0569	0.0610	0.0844
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	<0.010	<0.010	0.0220	0.0230	0.0210	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0110
Cadmium (Cd)	<0.0000050	0.0000136	<0.0000050	0.0000056	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000079	0.0000073	0.0000092	<0.0000050	<0.0000050
Calcium (Ca)	19.2	11.1	27.3	16.7	10.3	26.5	28.3	31.3	10.4	10.6	25.1	26.6	22.2	28.2	41.1
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000350	0.000410	0.000110	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	<0.00050	0.000560	0.000660	<0.00050	0.000500	0.000510	0.000560	0.00190	<0.00050	0.000540	0.000640	0.000820	0.000890	0.000610	0.00111
Iron (Fe)	0.0920	0.0320	<0.030	0.111	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00200	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00130
Magnesium (Mg)	3.11	1.59	5.80	2.91	1.67	5.11	6.34	18.9	1.66	1.64	4.07	8.89	7.24	6.00	22.5
Manganese (Mn)	0.00527	0.00469	0.00195	0.00906	0.00407	0.000120	0.00148	0.000300	0.00252	0.00400	<0.00010	<0.00010	0.000280	0.00289	0.00250
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000426	0.000315	0.000485	0.000419	0.000338	0.000152	0.000197	0.000496	0.000337	0.000335	0.000586	0.0000960	0.0000930	0.000376	0.000243
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000880
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.280	0.316	0.408	0.271	0.309	0.165	0.183	0.406	0.306	0.301	0.338	0.366	0.325	0.365	0.984
Selenium (Se)	<0.000050	<0.000050	0.0000610	0.0000700	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000118	<0.000050	<0.000050	0.0000620	0.0000500
Silicon (Si)	3.50	2.28	2.32	3.54	2.21	3.13	3.37	3.16	2.26	2.19	2.43	3.25	3.11	2.58	3.23
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000134	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2.50	<2.0	4.80	2.30	<2.0	4.80	5.40	13.6	<2.0	<2.0	2.60	3.00	2.70	5.10	20.0
Strontium (Sr)	0.0868	0.0481	0.104	0.0811	0.0456	0.137	0.145	0.214	0.0468	0.0469	0.0812	0.0759	0.0633	0.113	0.233
Sulphur (S)	1.85	1.04	11.9	1.86	1.36	1.02	1.22	1.25	1.60	1.26	9.14	4.91	4.59	9.46	13.8
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000400	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.0000650	0.0000270	0.0000900	0.0000590	0.0000280	0.000270	0.000259	0.000177	0.0000290	0.0000300	0.0000840	0.0000230	0.0000150	0.000150	0.000335
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000580	0.000680	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0		

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS10	WQS11-US	WQS06	WQS08	WQS11-US	WQS01	WQS02	WQS03	WQS11	WQS11-US	WQS13	WQS16	WQS17	WQS05	WQS03-DS
Date	21-Feb-2019	21-Feb-2019	11-Mar-2019	11-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	12-Mar-2019	13-Mar-2019	13-Mar-2019
Time	10:50:00 AM	10:00:00 AM	1:00:00 PM	4:20:00 PM	12:00:00 AM	11:20:00 AM	9:45:00 AM	11:55:00 AM	2:20:00 PM	3:55:00 PM	12:30:00 PM	1:25:00 PM	1:05:00 PM	12:00:00 AM	1:35:00 PM
QAQC	Regular	Regular	Regular	Regular	Field Duplicate	Regular	Regular	Regular	Regular	Field Duplicate	Regular	Regular	Regular	Field Duplicate	Regular
ALS Sample ID	L2235919-13	L2235919-15	L2244461-5	L2244461-11	L2244461-21	L2244461-1	L2244461-2	L2244461-3	L2244461-14	L2244461-15	L2244461-17	L2244461-9	L2244461-10	L2244461-20	L2244461-4
Polycyclic Aromatic Hydrocarbons (cont'd)															
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	83.8	85.1	116	106	84.0	86.4	83.8	82.0	82.4	89.5	88.3	86.2	88.6	83.1	90.0
Chrysene d12	102	103	124	127	65.4	71.3	76.2	69.2	98.2	75.2	97.5	74.3	102	102	77.3
Naphthalene d8	97.9	98.9	120	117	80.1	87.6	95.4	87.0	92.6	92.3	92.6	89.1	90.0	78.8	95.4
Phenanthrene d10	95.3	96.4	103	103	101	101	109	98.9	109	112	107	101	108	98.7	108
Aggregate Organics															
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.00250	0.00680	0.00320	0.00860	0.00180	0.00220	0.00130	0.00180	0.00530	0.00210	0.00130	0.00500	0.00350	0.00150	0.00410
Volatile Organic Compounds															
Benzene	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	<0.00045	<0.00045	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	<0.00050	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	<0.00075	<0.00075	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	91.6	87.9	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	106	106	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological															
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)															
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species															
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS04B	WQS05	WQS06-US	WQS09	WQS10	WQS12	WQS01	WQS03	WQS03-DS	WQS11	WQS13	WQS04B	WQS04B	WQS05	WQS05	WQS06	WQS08	WQS09
Date	13-Mar-2019	13-Mar-2019	13-Mar-2019	13-Mar-2019	13-Mar-2019	13-Mar-2019	29-Apr-2019	29-Apr-2019	29-Apr-2019	29-Apr-2019	29-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019
Time	12:00:00 PM	11:10:00 AM	2:15:00 PM	10:30:00 AM	9:40:00 AM	9:00:00 AM	3:00:00 PM	2:15:00 PM	3:26:00 PM	1:00:00 PM	1:32:00 PM		1:25:00 PM		1:59:00 PM	2:55:00 PM	1:00:00 PM	2:30:00 PM
QAQC	Regular	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Field Duplicate	Field Duplicate	Regular	Regular	Regular
ALS Sample ID	L2244461-6	L2244461-8	L2244461-7	L2244461-12	L2244461-13	L2244461-16	L2266761-1	L2266761-3	L2266761-4	L2266761-11	L2266761-7	L2266761-14	L2266761-2	L2266761-15	L2266761-5	L2266761-6	L2266761-8	L2266761-9
<i>In Situ</i>																		
Temperature (°C)	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.40	0.40	5.80	3.60	-	4.10	-	5.50	6.40	5.30	6.50
pH	7.99	7.89	7.82	7.55	7.44	7.27	7.72	7.74	7.49	7.2	7.4	-	7.67	-	7.72	7.76	7.59	7.78
Conductivity (µS/cm)	115	110	94.9	63.2	64.7	42.1	66.3	53.3	39.2	47.7	66.9	-	71.1	-	77	80	49.9	56.6
Specific Conductivity (µS/cm)	220	210	182	7.55	124	80.6	119.9	100.4	73.9	75.3	113.1	-	118.5	-	122.6	124.2	80	87.5
Dissolved Oxygen (mg/L)	13.6	13.7	13.4	13.6	13.4	12.9	14.16	14.29	14.85	13.43	13.62	-	12.32	-	11.94	11.58	12.22	11.81
Dissolved Oxygen %	93.3	93.7	92.0	92.7	91.8	88.2	101.3	98.9	102.7	107.3	102.8	-	94.1	-	94.7	94	96.4	96.2
ORP	151	154	145	155	169	185	134	147.4	130.4	168.2	147.3	-	187.4	-	175.2	180.1	217.5	175.4
Turbidity (NTU)	1.22	0.81	0.65	1.42	1.3	0.85	4.87	12.48	53.75	8.17	2.02	-	7.69	-	7.11	8.34	8.19	7.36
Physical Tests																		
Colour, True	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	45.8	81.6	130	42	33.3	83.4	80.3	63.6	63.1	53.8	37.5	38.2
Conductivity (µS/cm)	227	215	189	127	128	83.0	121	101	74.8	75.6	114	120	120	124	124	126	80.6	88.1
Hardness (as CaCO ₃)	109	99.5	84.8	59.6	56.8	36.7	58.4	48.9	36.5	34.6	52.3	58.7	57.7	60.5	57	56.7	34.5	39.5
pH	8.17	8.06	7.97	7.87	7.88	7.65	7.99	7.86	7.6	7.71	7.9	7.98	7.91	7.95	7.96	7.93	7.82	7.86
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	4.7	<3.0	146	12.1	<3.0	9.1	7.3	6.1	16.5	15.7	11.7	7.5
Total Dissolved Solids	143	137	117	76.0	82.0	49.0	100	107	125	76	89	105	104	106	112	108	64	71
Turbidity (NTU)	0.310	0.360	0.260	0.960	0.770	0.410	3.97	15.3	79.1	6.64	2.21	6.98	7.33	6.83	6.17	7.26	5.69	6.57
Acidity (as CaCO ₃)	1.30	1.70	1.90	2.20	2.10	2.20	1.2	2.1	2.6	2.2	2	2	1.9	1.8	1.8	2.6	2	2
Alkalinity, Total (as CaCO ₃)	125	86.1	65.8	64.6	66.3	37.7	60.4	51.2	30.7	31.1	49.2	57.8	58	52.8	52.7	50.2	37.3	40.7
Anions																		
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	0.700	<0.50	<0.50	<0.50	0.62	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.0430	0.0410	0.0350	0.0380	0.0380	0.0290	0.042	0.047	0.037	0.043	0.038	0.045	0.045	0.044	0.045	0.043	0.036	0.037
Sulphate (SO ₄)	7.79	30.0	31.4	7.68	7.46	4.96	1.52	0.63	3.56	4.81	7.71	2.67	2.67	8.14	8.16	11.3	3.93	3.94
Nutrients																		
Total Nitrogen	0.114	0.167	0.182	0.115	0.131	0.103	0.275	0.411	0.637	0.254	0.244	0.414	0.397	0.329	0.4	0.319	0.152	0.178
Total Kjeldahl Nitrogen	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.251	0.405	0.75	0.233	0.205	0.442	0.421	0.348	0.375	0.334	0.157	0.167
Ammonia as N	<0.0050	<0.0050	<0.0050	0.00800	0.00860	<0.0050	<0.0050	<0.0050	0.0072	0.0111	<0.0050	0.0069	<0.0050	0.0097	<0.0050	<0.0050	<0.0050	0.0075
Nitrate (as N)	0.0874	0.142	0.170	0.0819	0.0823	0.0568	0.058	0.0108	0.0144	0.0067	0.041	0.0376	0.0392	0.0322	0.0322	0.0289	0.0091	0.0095
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	<0.0020	<0.0020	<0.0020	0.00260	0.00280	0.00290	0.0074	0.0206	0.0647	0.0251	0.0066	0.0161	0.0142	0.0108	0.0112	0.0109	0.0108	0.0104
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon																		
Total Organic Carbon	1.40	1.19	1.19	0.870	1.07	1.54	10.6	18.9	29.5	9.17	9.38	17.4	16.9	14.5	14.3	13.1	7.25	7.68
Dissolved Organic Carbon	1.45	1.42	1.35	0.910	1.13	1.54	11.2	19.3	29	9.76	9.78	17.8	17.5	15.2	15.4	13.7	7.75	8.63
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																		
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																		
Aluminum (Al)	0.0192	0.0121	0.00680	0.0150	0.0185	0.0147	0.312	0.793	1.8	0.566	0.14	0.97	0.479	0.551	0.417	0.444	0.337	0.311
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	0.00013	<0.00010	<0.00010	0.00011	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000300	0.000180	0.000160	0.000210	0.000210	0.000190	0.00048	0.00103	0.0014	0.00053	0.00036	0.00067	0.00059	0.00049	0.00048	0.00051	0.00037	0.00036
Barium (Ba)	0.0406	0.0576	0.0663	0.0426	0.0411	0.0256	0.033	0.0582	0.0466	0.0252	0.0708	0.0331	0.0313	0.0469	0.0454	0.0566	0.0292	0.0319
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0200	<0.010	<0.010	<0.010	<0.010	<0.010	0.019	<0.010	<0.010	<0.010	<0.010	0.014	0.013	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.000050	<0.000050	<0.000050	<0.000050	0.000052	<0.000050	<0.000050	0.0000108	0.0000254	0.0000078	0.0000101	0.0000071	0.0000081	0.0000104	0.0000087	0.0000109	0.0000091	0.0000088
Calcium (Ca)	31.7	30.5	26.9	19.4	18.7	12.6	19.7	11.3	9.59	10.6	18.6	20.4	19.2	19.4	19.1	19.7	12.1	13.2
Chromium (Cr)	0.000220	<0.00010	<0.00010	0.000110	0.000110	<0.00010	0.0006	0.00104	0.00236	0.00079	0.00024	0.00119	0.00086	0.00078	0.00066	0.00067	0.00042	0.00075
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00028	0.00118	0.00021	<0.00010	0.00027	0.00024	0.00021	0.00021	0.00024	0.00014	0.00013
Copper (Cu)	0.000570	0.000580	0.000670	<0.00050	0.00147	<0.00050	0.00256	0.00346	0.0062	0.00191	0.004	0.00511	0.00504	0.00481	0.00463	0.00462	0.00167	0.002
Iron (Fe)	<0.030	<0.030	<0.030	0.175	0.158	0.0500	0.252	0.747	2.19	0.574	0.131	0.618	0.472	0.428	0.424	0.45	0.534	0.474
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000165	0.000613	0.000141	<0.000050	0.000121	0.00011	0.000091	0.000104	0.000114	0.000109	0.000099
Lithium (Li)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0016	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	6.23	5.55	4.22	3.11	2.97	1.84	3.67	6.64	4.59	2.41	3.33	4.08	4	4.11	3.97	4.32	2.15	2.37

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS04B	WQS05	WQS06-US	WQS09	WQS10	WQS12	WQS01	WQS03	WQS03-DS	WQS11	WQS13	WQS04B	WQS04B	WQS05	WQS05	WQS06	WQS08	WQS09
Date	13-Mar-2019	13-Mar-2019	13-Mar-2019	13-Mar-2019	13-Mar-2019	13-Mar-2019	29-Apr-2019	29-Apr-2019	29-Apr-2019	29-Apr-2019	29-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019
Time	12:00:00 PM	11:10:00 AM	2:15:00 PM	10:30:00 AM	9:40:00 AM	9:00:00 AM	3:00:00 PM	2:15:00 PM	3:26:00 PM	1:00:00 PM	1:32:00 PM		1:25:00 PM		1:59:00 PM	2:55:00 PM	1:00:00 PM	2:30:00 PM
QAQC	Regular	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Field Duplicate	Field Duplicate	Regular	Regular	Regular
ALS Sample ID	L2244461-6	L2244461-8	L2244461-7	L2244461-12	L2244461-13	L2244461-16	L2266761-1	L2266761-3	L2266761-4	L2266761-11	L2266761-7	L2266761-14	L2266761-2	L2266761-15	L2266761-5	L2266761-6	L2266761-8	L2266761-9
Total Metals <i>(cont'd)</i>																		
Manganese (Mn)	0.00180	0.00261	0.000320	0.00784	0.00773	0.00320	0.00587	0.0114	0.0509	0.0273	0.00273	0.015	0.0137	0.0109	0.0112	0.0114	0.0229	0.0211
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000025	<0.0000050	<0.000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000218	0.000419	0.000584	0.000456	0.000417	0.000330	0.000092	0.000107	0.000109	0.000251	0.000371	0.000132	0.000111	0.000285	0.000299	0.000389	0.000349	0.000345
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00098	0.00345	0.00097	<0.00050	0.00102	0.00096	0.00089	0.0009	0.00094	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.262	0.384	0.379	0.311	0.298	0.338	0.205	0.282	0.594	0.567	0.31	0.367	0.277	0.385	0.356	0.418	0.313	0.307
Selenium (Se)	<0.000050	0.0000580	0.000108	0.0000800	0.0000690	<0.000050	<0.000050	0.000075	0.000098	0.000061	0.000072	0.00007	0.000103	0.000097	0.000071	0.00009	0.000074	0.000068
Silicon (Si)	3.32	2.60	2.40	3.64	3.48	2.43	4.44	4.56	6.05	5.1	3.32	5.76	4.75	4.53	4.03	3.83	4.11	3.86
Silver (Ag)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017	0.000022	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	5.40	4.80	3.20	2.50	2.40	<2.0	3.2	3.3	3.3	2.5	2.1	3.4	3.3	3.3	3	3	2.1	2.2
Strontium (Sr)	0.147	0.113	0.0888	0.0858	0.0841	0.0495	0.0931	0.0816	0.0608	0.0614	0.0615	0.0928	0.0898	0.0815	0.08	0.0725	0.0621	0.0669
Sulphur (S)	2.25	9.33	9.93	2.29	2.16	1.29	0.74	<0.50	1.43	1.86	3.01	1.23	1.21	3.11	2.95	4.34	1.25	1.49
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000015	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	0.029	0.021	<0.010	<0.033	0.012	<0.016	0.011	0.011	<0.010	<0.010
Uranium (U)	0.000265	0.000148	0.000115	0.0000750	0.0000740	0.0000360	0.000134	0.00003	0.000052	0.000049	0.000055	0.000115	0.000097	0.000081	0.000069	0.000054	0.000049	0.000051
Vanadium (V)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	0.00198	0.00442	0.00161	<0.00050	0.00236	0.0016	0.00145	0.00123	0.00116	0.00103	0.001
Zinc (Zn)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0039	0.0081	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals																		
Aluminum (Al)	0.00380	<0.0030	<0.0030	0.00350	0.00380	0.00510	0.113	0.517	0.422	0.103	0.0569	0.157	0.155	0.121	0.121	0.089	0.089	0.0874
Antimony (Sb)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.000230	0.000110	0.000130	0.000150	0.000160	0.000110	0.00038	0.00086	0.00056	0.00034	0.00029	0.00049	0.00045	0.00036	0.00036	0.00033	0.00025	0.00025
Barium (Ba)	0.0420	0.0565	0.0677	0.0404	0.0405	0.0254	0.0303	0.0404	0.0506	0.0278	0.0211	0.0682	0.0292	0.0437	0.0442	0.0539	0.0272	0.0297
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.0180	<0.010	<0.010	<0.010	<0.010	<0.010	0.016	<0.010	<0.010	<0.010	<0.010	0.012	0.012	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000108	0.0000145	0.0000063	0.0000093	0.0000059	0.0000059	0.0000058	0.0000075	0.0000098	0.0000066	0.0000053
Calcium (Ca)	31.9	29.8	26.0	18.5	17.3	11.6	17.6	10.3	8.33	10.1	15.5	17.4	17.2	18.2	16.6	16.8	10.4	12
Chromium (Cr)	0.000370	<0.00010	<0.00010	0.000130	<0.00010	<0.00010	0.00038	0.00075	0.00081	0.00024	0.00017	0.00051	0.00049	0.00033	0.00034	0.00024	0.00023	0.00024
Cobalt (Co)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00017	<0.00010	<0.00010	<0.00010						

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS04B	WQS05	WQS06-US	WQS09	WQS10	WQS12	WQS01	WQS03	WQS03-DS	WQS11	WQS13	WQS04B	WQS04B	WQS05	WQS05	WQS06	WQS08	WQS09
Date	13-Mar-2019	13-Mar-2019	13-Mar-2019	13-Mar-2019	13-Mar-2019	13-Mar-2019	29-Apr-2019	29-Apr-2019	29-Apr-2019	29-Apr-2019	29-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019	30-Apr-2019
Time	12:00:00 PM	11:10:00 AM	2:15:00 PM	10:30:00 AM	9:40:00 AM	9:00:00 AM	3:00:00 PM	2:15:00 PM	3:26:00 PM	1:00:00 PM	1:32:00 PM		1:25:00 PM		1:59:00 PM	2:55:00 PM	1:00:00 PM	2:30:00 PM
QAQC	Regular	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Field Duplicate	Field Duplicate	Regular	Regular	Regular
ALS Sample ID	L2244461-6	L2244461-8	L2244461-7	L2244461-12	L2244461-13	L2244461-16	L2266761-1	L2266761-3	L2266761-4	L2266761-11	L2266761-7	L2266761-14	L2266761-2	L2266761-15	L2266761-5	L2266761-6	L2266761-8	L2266761-9
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)																		
Benz[a]anthracene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[a]pyrene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	78.1	91.2	84.0	92.6	89.1	85.0	79	80.5	76.4	77.6	79.7	76.6	78.3	76.6	79.6	82.8	84.2	77.9
Chrysene d12	71.8	78.6	72.7	95.1	99.1	105	88.4	87.9	84	84	88.2	75.9	84.5	81.3	84.1	86.4	85.7	85.3
Naphthalene d8	90.2	97.1	90.1	91.3	87.3	99.9	86.9	90.9	95.2	91.7	91.8	89.9	86.7	95.3	90.6	92.9	93.9	93.1
Phenanthrene d10	102	111	104	118	109	113	96.4	99.4	101.8	99.4	98.2	95.8	95.3	101.3	98.3	101.3	102.1	98.8
Aggregate Organics																		
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.00290	0.00140	0.00170	0.00360	0.00360	0.00380	0.0027	0.0011	<0.0010	0.0017	0.0023	0.0032	0.0012	<0.0010	0.0023	0.002	0.0011	<0.0010
Volatile Organic Compounds																		
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons																		
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological																		
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)																		
Selenium +4	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Selenium +6	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Selenocyanate	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Unknown Se Species	-	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dissolved Fe Species																		
Ferrous.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units in mg/L unless otherwise noted.

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11-US	WQS12	WQS17	WQS11-US	WQS12	WQS04B	WQS05	WQS05	WQS08	WQS09	WQS01	WQS02	WQS03-DS	WQS06-US	WQS06-US	WQS18	WQS07	WQS16	WQS17	WQS06
Date	30-Apr-2019	30-Apr-2019	30-Apr-2019	24-Aug-2019	24-Aug-2019	25-Aug-2019	25-Aug-2019	25-Aug-2019	25-Aug-2019	25-Aug-2019	27-Aug-2019	27-Aug-2019	4-Oct-2019	4-Oct-2019	4-Oct-2019	4-Oct-2019	6-Oct-2019	6-Oct-2019	6-Oct-2019	4-Nov-2019
Time	12:17:00 PM	3:33:00 PM	10:14:00 AM	1:35:00 PM	8:40:00 AM	3:20:00 PM	12:50:00 PM	12:50:00 PM	10:40:00 AM	8:15:00 AM	8:45:00 AM	10:40:00 AM	4:00:00 PM	10:30:00 AM	10:30:00 AM	2:15:00 PM	2:20:00 PM	8:54:00 AM	10:24:00 AM	9:49:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2266761-10	L2266761-12	L2266761-13	L2336095-2	L2336095-1	L2336095-6	L2336095-5	L2336095-28	L2336095-4	L2336095-3	L2337907-1	L2337907-2	L2361205-2	L2361205-4	L2361205-7	L2361205-1	L2361205-3	L2361205-6	L2361205-5	L2378791-5
<i>In Situ</i>																				
Temperature (°C)	6.30	7.50	1.70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.30
pH	7.41	7.74	7.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.63
Conductivity (µS/cm)	48.9	51.5	74.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81
Specific Conductivity (µS/cm)	76.1	77.4	134.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	143
Dissolved Oxygen (mg/L)	12.32	11.91	12.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.97
Dissolved Oxygen %	99.7	99.2	92.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	94.5
ORP	202.5	177.9	206.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	141.7
Turbidity (NTU)	7.48	7.22	1.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3
Physical Tests																				
Colour, True	42.4	40.5	41.8	<5.0	<5.0	6	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	19.4	<5.0	<5.0	18.6	<5.0	20.8	21.5	14.3
Conductivity (µS/cm)	76.8	78	134	58.8	62.5	183	164	165	55.8	63.2	159	171	267	169	168	267	168	157	157	146
Hardness (as CaCO ₃)	34.4	36	61.7	-	-	85.4	-	72.9	-	-	73.5	81.2	138	80.7	81.1	138	79.8	87.5	85.5	67.7
pH	7.74	7.75	7.93	7.62	7.65	8.21	7.92	7.92	7.64	7.67	8.17	8.22	8.33	7.96	7.85	8.35	7.97	8.07	8.07	7.81
Total Suspended Solids	7.9	10.9	<3.0	-	-	<3.0	-	<3.0	-	-	4.4	<3.0	59.6	<3.0	<3.0	5.6	<3.0	<3.0	<3.0	4.4
Total Dissolved Solids	71	66	110	-	-	101	-	98	-	-	93	110	155	99	98	150	99	99	95	101
Turbidity (NTU)	5.93	5.82	1.56	1.51	1.94	0.67	0.63	0.56	11.3	13.2	1.55	0.89	2.44	0.4	0.41	2.44	0.27	0.29	0.31	2.58
Acidity (as CaCO ₃)	2.2	2.1	1.9	1.9	1.7	<1.0	1.9	1.8	1.9	1.7	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity, Total (as CaCO ₃)	31.9	32.9	49.9	26	26.2	91.8	46.3	46.6	23.9	25.6	78.4	85.4	154	45.5	44	153	43.3	81.8	81.3	49.8
Anions																				
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.55	0.67	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.043	0.043	0.059	0.023	0.025	0.035	0.034	0.034	0.02	0.021	0.03	0.032	0.054	0.027	0.027	0.053	0.028	0.044	0.045	0.031
Sulphate (SO ₄)	4.64	4.91	6.14	4.03	4.46	3.27	31.9	31.8	4.24	5.6	2.37	2.4	7.66	35.8	35.8	7.91	36.3	4.97	4.95	21.6
Nutrients																				
Total Nitrogen	0.275	0.24	2.71	-	-	0.11	-	0.169	-	-	0.096	0.073	0.177	0.144	0.154	0.155	0.275	0.39	0.372	0.164
Total Kjeldahl Nitrogen	0.298	0.237	0.716	<0.050	0.057	0.056	<0.050	0.067	0.057	0.058	0.057	<0.050	0.127	<0.050	<0.050	0.132	0.171	0.214	0.19	0.089
Ammonia as N	0.0262	<0.0050	<0.0050	-	-	<0.0050	-	<0.0050	-	-	0.0085	0.0071	0.0114	<0.0050	0.0063	0.0065	0.141	0.013	<0.0050	<0.0050
Nitrate (as N)	0.0182	0.008	2.58	0.0068	0.0265	0.0166	0.0533	0.0532	<0.0050	0.0088	0.0092	0.0071	<0.0050	0.0665	0.0659	<0.0050	0.0668	0.164	0.163	0.0607
Nitrite (as N)	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.0186	0.0206	0.0064	-	-	0.0025	-	<0.0020	-	-	0.0026	<0.0020	0.0058	0.0021	0.0027	0.0068	<0.0020	0.0037	0.004	0.0047
Dissolved Orthophosphate (as P)	0.001	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon																				
Total Organic Carbon	9.46	8.98	12.9	-	-	1.85	-	1.24	-	-	1.27	1.57	6.13	1.4	1.63	5.89	1.53	6.92	6.98	4.73
Dissolved Organic Carbon	9.82	10.2	13.2	-	-	2.2	-	1.7	-	-	1.28	1.23	5.65	1.6	1.54	5.58	1.49	6.88	6.16	5.23
Total Inorganic Carbon	-	-	-	5.79	5.87	20.6	10.6	11	5.47	5.95	18.5	19.2	34	10.7	10.9	34.2	11.2	18.8	18.9	-
Dissolved Inorganic Carbon	-	-	-	5.72	5.78	20.5	10.4	10.8	5.31	5.99	19.5	19.6	33.2	10.9	11.1	32	11.1	19.2	18.8	-
Cyanide																				
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																				
Aluminum (Al)	0.392	0.503	0.15	-	-	0.0238	-	0.0304	-	-	0.0534	0.024	0.138	0.0239	0.0243	0.185	0.0265	0.021	0.0374	0.136
Antimony (Sb)	<0.00010	<0.00010	<0.00010	-	-	0.0002	-	0.00012	-	-	0.00025	0.00021	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.00043	0.00048	0.00041	-	-	0.00039	-	0.00018	-	-	0.00053	0.0005	0.00041	0.0002	0.00021	0.00041	0.0002	0.00035	0.00038	0.00028
Barium (Ba)	0.0263	0.0252	0.0445	-	-	0.0372	-	0.0553	-	-	0.0322	0.0352	0.0755	0.0697	0.069	0.0736	0.0684	0.0565	0.0603	0.0685
Beryllium (Be)	<0.00010	<0.00010	<0.00010	-	-	<0.00010	-	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	-	-	<0.000050	-	<0.000050	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	-	-	0.015	-	<0.010	-	-	0.013	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000113	0.0000094	0.0000105	-	-	<0.000050	-	0.0000204	-	-	<0.000050	<0.000050	0.0000068	0.0000271	0.00003	0.0000073	0.0000224	0.0000087	0.0000143	0.0000123
Calcium (Ca)	10.2	10.8	19.6	-	-	27.5	-	23.1	-	-	23	25.2	27.4	24.1	24.9	28.2	24.3	21	21.7	19.8
Chromium (Cr)	0.00055	0.00064	0.00025	-	-	0.00027	-	0.00013	-	-	0.00045	0.00034	0.00021	<0.00010	<0.00010	0.00024	<0.00010	<0.00010	<0.00010	0.00033
Cobalt (Co)	0.00019	0.00022	<0.00010	-	-	<0.00010	-	<0.00010	-	-	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	0.00011
Copper (Cu)	0.00179	0.00191	0.00225	-	-	0.0009	-	0.00147	-	-	0.00076	0.00074	0.00129	0.00232	0.00229	0.00144	0.00185	0.00139	0.00174	0.00266
Iron (Fe)	0.513	0.582	0.139	-	-	0.032	-	0.041	-	-	0.034	0.016	0.143	0.017	0.015	0.207	0.023	0.02	0.049	0.16
Lead (Pb)	0.000131	0.000158	0.000062	-	-	<0.000050	-	<0.000050	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.00006	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	-	-	<0.0010	-	<0.0010	-	-	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	2.5	2.43	5.45	-	-	5.1	-	3.76	-	-	3.91	4.55	13.8	3.48	3.46	13.8	3.41	6.88	7.11	3.81

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS11-US	WQS12	WQS17	WQS11-US	WQS12	WQS04B	WQS05	WQS05	WQS08	WQS09	WQS01	WQS02	WQS03-DS	WQS06-US	WQS06-US	WQS18	WQS07	WQS16	WQS17	WQS06
Date	30-Apr-2019	30-Apr-2019	30-Apr-2019	24-Aug-2019	24-Aug-2019	25-Aug-2019	25-Aug-2019	25-Aug-2019	25-Aug-2019	25-Aug-2019	27-Aug-2019	27-Aug-2019	4-Oct-2019	4-Oct-2019	4-Oct-2019	4-Oct-2019	6-Oct-2019	6-Oct-2019	6-Oct-2019	4-Nov-2019
Time	12:17:00 PM	3:33:00 PM	10:14:00 AM	1:35:00 PM	8:40:00 AM	3:20:00 PM	12:50:00 PM	12:50:00 PM	10:40:00 AM	8:15:00 AM	8:45:00 AM	10:40:00 AM	4:00:00 PM	10:30:00 AM	10:30:00 AM	2:15:00 PM	2:20:00 PM	8:54:00 AM	10:24:00 AM	9:49:00 AM
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	L2266761-10	L2266761-12	L2266761-13	L2336095-2	L2336095-1	L2336095-6	L2336095-5	L2336095-28	L2336095-4	L2336095-3	L2337907-1	L2337907-2	L2361205-2	L2361205-4	L2361205-7	L2361205-1	L2361205-3	L2361205-6	L2361205-5	L2378791-5
Total Metals (cont'd)																				
Manganese (Mn)	0.0231	0.0296	0.00245	-	-	0.00398	-	0.0038	-	-	0.00274	0.00453	0.00416	0.00186	0.00165	0.00549	0.00188	0.00141	0.0121	0.00646
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	-	-	<0.0000050	-	<0.0000050	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000228	0.000272	0.000112	-	-	0.000162	-	0.0246	-	-	0.000087	0.000117	0.000273	0.000509	0.000482	0.000429	0.000519	0.000145	0.000131	0.000415
Nickel (Ni)	0.00083	0.00091	0.00055	-	-	<0.00050	-	<0.00050	-	-	<0.00050	<0.00050	0.00065	<0.00050	<0.00050	0.00067	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	-	-	<0.050	-	<0.050	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.30
Potassium (K)	0.47	0.549	0.357	-	-	0.248	-	0.366	-	-	0.158	0.183	0.552	0.355	0.358	0.575	0.35	0.352	0.388	0.339
Selenium (Se)	0.000064	<0.000050	0.000073	-	-	0.000064	-	0.000127	-	-	0.000059	<0.000050	0.000051	0.000129	0.000084	<0.000050	0.000138	0.000074	0.000077	0.000094
Silicon (Si)	4.18	4.62	3.89	-	-	3.52	-	2.99	-	-	3.19	3.25	3.01	2.76	2.78	3.12	2.74	3.31	3.48	2.89
Silver (Ag)	<0.000010	<0.000010	<0.000010	-	-	<0.000010	-	<0.000010	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2.1	2.5	2.2	-	-	3.97	-	2.23	-	-	3.5	3.58	8.52	1.95	1.92	8.41	1.98	2.2	2.25	2.2
Strontium (Sr)	0.0537	0.0613	0.0535	-	-	0.125	-	0.0835	-	-	0.121	0.125	0.167	0.0811	0.0767	0.161	0.0765	0.0582	0.0607	0.07
Sulphur (S)	1.62	1.89	2.49	-	-	0.87	-	11.4	-	-	0.62	0.68	2.65	12	11.8	2.78	11.6	1.73	1.69	7.39
Thallium (Tl)	<0.000010	<0.000010	<0.000010	-	-	<0.000010	-	<0.000010	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	-	-	<0.00010	-	<0.00010	-	-	<0.00010	<0.00010	0.00015	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.011	0.015	<0.010	-	-	0.00039	-	0.00064	-	-	0.0014	0.00047	0.00341	<0.00030	<0.00030	0.00458	0.00031	0.00033	<0.00060	<0.010
Uranium (U)	0.000046	0.000115	0.000019	-	-	0.000099	-	0.000039	-	-	0.000093	0.000097	0.000168	0.000058	0.000054	0.000178	0.000052	0.000021	0.00002	0.000057
Vanadium (V)	0.00135	0.00155	<0.00050	-	-	0.00084	-	<0.00050	-	-	0.00112	0.00094	0.00059	<0.00050	<0.00050	0.00073	<0.00050	<0.00050	<0.00050	0.00051
Zinc (Zn)	<0.0030	<0.0030	<0.0030	-	-	<0.0030	-	<0.0030	-	-	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals																				
Aluminum (Al)	0.1	0.0987	0.0892	-	-	0.0064	-	0.0087	-	-	0.0101	0.005	0.0116	0.0138	0.0138	0.0103	0.0097	0.0142	0.0124	0.0248
Antimony (Sb)	<0.00010	<0.00010	<0.00010	-	-	0.00016	-	<0.00010	-	-	0.00022	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.00033	0.00033	0.00038	-	-	0.00038	-	0.00017	-	-	0.00054	0.00043	0.00032	0.00016	0.00015	0.0003	0.00013	0.00033	0.00032	0.00019
Barium (Ba)	0.0233	0.0212	0.0466	-	-	0.0404	-	0.0599	-	-	0.0328	0.0344	0.0789	0.0768	0.0779	0.0778	0.0743	0.0599	0.0613	0.0661
Beryllium (Be)	<0.00010	<0.00010	<0.00010	-	-	<0.00010	-	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	-	-	<0.000050	-	<0.000050	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	<0.010	<0.010	-	-	0.014	-	<0.010	-	-	0.013	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	<0.0000050	0.0000055	0.0000134	-	-	<0.0000050	-	0.0000214	-	-	<0.0000050	<0.0000050	<0.0000050	0.0000243	0.0000237	<0.0000050	0.0000245	0.0000106	0.0000117	0.0000111
Calcium (Ca)	9.98	10.6	16.4	-	-	26.1	-	23.3	-	-	22.7	24.9	29	25.6	25.8	29.6	25.3	22	21.9	20.9
Chromium (Cr)	0.00023	0.00022	0.0002	-	-	0.00025	-	0.00011	-	-	0.00031	0.00045	0.00019	0.00017	0.00019	0.00017	0.00018	0.00017	0.00017	0.00011
Cobalt (Co)	<0.00010	<0.00010	<0.00010	-	-	<0.00010	-	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00141	0.00148	0.00225	-	-	0.00073	-	0.00134	-	-	0.00066	0.00067	0.00104	0.00176	0.00184	0.00111	0.00141	0.00141	0.00127	0.00234</

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

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Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS08	WQS01	WQS01	WQS03	WQS03-DS	WQS04B	WQS05	WQS09	WQS11	WQS13	WQS17	WQS11-US	WQS11-US	WQS12
Date	4-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	6-Nov-2019	6-Nov-2019	6-Nov-2019
Time	1:59:00 PM	10:14:00 AM	10:14:00 AM	10:59:00 AM	3:40:00 PM	2:10:00 PM	2:44:00 PM	3:09:00 PM	1:09:00 PM	11:39:00 AM	12:20:00 PM	9:29:00 AM	9:29:00 AM	10:09:00 AM
QAQC	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2378791-11	L2378791-16	L2378791-1	L2378791-3	L2378791-4	L2378791-2	L2378791-8	L2378791-12	L2378791-6	L2378791-13	L2378791-10	L2378791-17	L2378791-7	L2378791-9
<i>In Situ</i>														
Temperature (°C)	4.40	-	1.90	2.30	2.10	2.80	3.30	4.00	4.90	2.50	3.20	-	3.70	3.80
pH	7.74	-	7.96	7.96	7.89	8	8	7.84	7.83	7.78	7.81	-	7.74	7.75
Conductivity (µS/cm)	43.6	-	68.6	56.8	60.3	77.6	80	44.9	40.6	73.1	71.2	-	38.3	39.6
Specific Conductivity (µS/cm)	72	-	122.8	100.4	107.2	134.7	136.3	74.8	66.3	128.1	122.1	-	64.6	66.5
Dissolved Oxygen (mg/L)	12.41	-	12.65	12.45	12	12.89	12.73	12.58	12.39	12.7	12.56	-	12.52	12.53
Dissolved Oxygen %	95.6	-	91.2	90.7	94.3	95.2	95.5	96.1	96.9	93.1	93.7	-	94.7	95.1
ORP	177.3	-	130.5	132.6	188.5	185.2	186.5	180.9	170.7	160.8	168	-	104.3	113.1
Turbidity (NTU)	19.67	-	12.13	65	28.18	12.21	6.26	10.88	9.07	2.05	5.81	-	12.46	11.5
Physical Tests														
Colour, True	17.6	43.9	42	102	118	41.4	25.4	19.1	23.8	16	49.7	29.2	26.7	26.6
Conductivity (µS/cm)	74.9	129	127	104	111	139	142	77.8	69.1	132	127	67.8	67.9	69.6
Hardness (as CaCO ₃)	32.6	59.4	62.3	56	56.4	68.8	65.4	33.6	29.8	56.3	62.3	29.4	29.4	30.1
pH	7.62	7.93	7.83	7.72	7.74	7.88	7.84	7.64	7.55	7.77	7.82	7.56	7.54	7.57
Total Suspended Solids	24.8	4.2	5.6	<3.0	19	10.2	7.2	9.2	13.6	<3.0	<3.0	13	11.2	15.4
Total Dissolved Solids	63	86	97	123	130	111	114	68	62	87	107	56	62	39
Turbidity (NTU)	9.86	6.52	5.91	21.2	22.5	8.56	5.57	9.07	7.86	1.43	2.8	9.79	9.06	9.16
Acidity (as CaCO ₃)	2.3	<2.0	2.1	2.1	2.2	<2.0	<2.0	2	2	<2.0	2.5	2.2	2.1	2
Alkalinity, Total (as CaCO ₃)	31.2	65.2	65.6	52.9	52.4	70.7	52.2	32.8	27.3	43.9	53.1	27.4	27.2	27.7
Anions														
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.031	0.035	0.031	0.034	0.041	0.032	0.032	0.028	0.028	0.035	0.056	0.033	0.028	0.028
Sulphate (SO ₄)	5.14	1.63	1.34	0.46	3.19	2.13	17.2	5.82	5.04	20	5.2	4.81	4.46	4.72
Nutrients														
Total Nitrogen	0.148	0.239	0.24	0.419	0.614	0.22	0.189	0.119	0.175	0.17	1.73	0.216	0.202	0.204
Total Kjeldahl Nitrogen	0.136	0.24	0.224	0.502	0.631	0.221	0.187	0.107	0.119	0.112	0.561	0.182	0.184	0.187
Ammonia as N	<0.0050	<0.0050	<0.0050	0.0058	0.0062	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0092	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.0241	<0.0050	<0.0050	<0.0050	0.0233	<0.0050	0.0416	0.0227	<0.0050	0.0566	1.39	0.0127	0.0185	0.0127
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001	<0.0010	<0.0010	0.0015	0.0016	<0.0010	<0.0010
Total Phosphorus (as P)	0.0257	0.0076	0.0099	0.0182	0.0377	0.0122	0.0071	0.0143	0.0135	0.0032	0.0095	0.0185	0.0196	0.0176
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	0.0017
Carbon														
Total Organic Carbon	4.23	9.67	9.8	20	25.5	9.46	6.36	4.27	5.75	4.62	13.3	6.68	7.47	6.08
Dissolved Organic Carbon	4.86	10.3	10.2	20.4	24.9	9.24	6.11	4.55	6.34	4.56	12.7	6.62	6.93	6.53
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide														
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminum (Al)	0.641	0.3	0.351	1.05	1.11	0.445	0.238	0.319	0.337	0.0835	0.189	0.495	0.358	0.378
Antimony (Sb)	<0.00010	<0.00010	0.0001	<0.00010	0.0001	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.0004	0.00053	0.00056	0.0012	0.00101	0.00063	0.00041	0.00028	0.00036	0.00029	0.00052	0.00047	0.0004	0.00043
Barium (Ba)	0.0443	0.0326	0.0328	0.0704	0.0565	0.0358	0.0682	0.0377	0.0279	0.0711	0.0489	0.0334	0.0306	0.0284
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	0.012	0.011	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000206	<0.0000050	<0.0000050	0.0000166	0.000019	0.0000114	0.0000227	0.0000124	0.000008	0.0000229	0.0000199	0.0000129	0.0000091	0.0000078
Calcium (Ca)	10.8	18.8	18.4	11.9	12.5	20.5	19.8	11	9.51	18.6	15.7	9.29	9.1	9.01
Chromium (Cr)	0.0039	0.00087	0.00066	0.00141	0.00163	0.00074	0.00039	0.00044	0.00064	0.00014	0.00029	0.00057	0.00041	0.00044
Cobalt (Co)	0.0004	0.00014	0.00015	0.00035	0.00049	0.00029	0.00019	0.00018	0.00019	<0.00010	0.00011	0.0003	0.0002	0.00022
Copper (Cu)	0.0026	0.00255	0.00266	0.00398	0.00461	0.00345	0.00497	0.00211	0.00155	0.00335	0.00281	0.00197	0.0018	0.00182
Iron (Fe)	0.955	0.227	0.261	0.868	1.17	0.476	0.286	0.436	0.434	0.086	0.254	0.618	0.461	0.497
Lead (Pb)	0.000609	0.000051	0.000056	0.000188	0.000291	0.000135	0.000115	0.000293	0.000138	<0.000050	0.000135	0.000186	0.000144	0.000144
Lithium (Li)	<0.0010	<0.0010	<0.0010	0.0015	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.89	3.63	3.56	6.63	6.71	4.17	4.29	1.85	1.88	3.33	5.83	1.94	1.87	1.88

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS08	WQS01	WQS01	WQS03	WQS03-DS	WQS04B	WQS05	WQS09	WQS11	WQS13	WQS17	WQS11-US	WQS11-US	WQS12
Date	4-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	6-Nov-2019	6-Nov-2019	6-Nov-2019
Time	1:59:00 PM	10:14:00 AM	10:14:00 AM	10:59:00 AM	3:40:00 PM	2:10:00 PM	2:44:00 PM	3:09:00 PM	1:09:00 PM	11:39:00 AM	12:20:00 PM	9:29:00 AM	9:29:00 AM	10:09:00 AM
QAQC	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2378791-11	L2378791-16	L2378791-1	L2378791-3	L2378791-4	L2378791-2	L2378791-8	L2378791-12	L2378791-6	L2378791-13	L2378791-10	L2378791-17	L2378791-7	L2378791-9
Total Metals <i>(cont'd)</i>														
Manganese (Mn)	0.0564	0.0075	0.00942	0.0155	0.0246	0.0207	0.0136	0.0252	0.0328	0.00302	0.0103	0.05	0.0329	0.0384
Mercury (Hg)	<0.000050	<0.000050	0.0000051	0.0000116	0.0000135	0.0000059	<0.0000050	<0.0000050	0.0000052	<0.0000050	0.0000072	<0.0000050	<0.0000050	0.0000054
Molybdenum (Mo)	0.000758	0.000081	0.000103	0.0001	0.000153	0.000117	0.000345	0.00058	0.000341	0.000347	0.000142	0.000324	0.000298	0.000293
Nickel (Ni)	0.00185	<0.00050	<0.00050	0.00109	0.00196	0.00069	<0.00050	<0.00050	0.00057	<0.00050	0.00051	0.00077	0.00061	0.00069
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.39	0.182	0.182	0.254	0.405	0.254	0.36	0.308	0.398	0.297	0.355	0.409	0.38	0.405
Selenium (Se)	0.000127	0.000062	0.000069	<0.000050	0.000106	0.000063	0.000118	0.000081	<0.000050	0.000116	0.000059	0.000054	0.000067	0.000054
Silicon (Si)	3.7	4.09	4.26	4.49	4.7	4.19	3.25	3.05	3.26	2.8	3.58	3.54	3.45	3.46
Silver (Ag)	<0.000010	<0.000010	<0.000010	0.000019	0.000021	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	3	3	2.9	3.8	3.5	2.7	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0585	0.0891	0.0916	0.0815	0.0788	0.0965	0.0722	0.054	0.0467	0.0639	0.0436	0.0439	0.0452	0.0432
Sulphur (S)	1.32	<0.50	<0.50	<0.50	0.89	0.65	5.8	1.56	1.41	6.07	1.41	1.21	1.47	1.29
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00023	0.00021	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.018	<0.010	<0.010	0.016	0.018	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	0.01
Uranium (U)	0.00007	0.000107	0.000112	0.000029	0.00004	0.000114	0.000065	0.00006	0.00004	0.000052	0.000021	0.000041	0.000039	0.000038
Vanadium (V)	0.00181	0.00139	0.0015	0.00235	0.00288	0.00172	0.00085	0.00105	0.00113	<0.00050	0.00063	0.00159	0.00118	0.00127
Zinc (Zn)	0.0036	<0.0030	<0.0030	0.0046	0.0062	0.0031	0.0035	<0.0030	<0.0030	<0.0030	0.0034	<0.0030	<0.0030	<0.0030
Dissolved Metals														
Aluminum (Al)	0.0457	0.0944	0.107	0.44	0.524	0.087	0.0485	0.053	0.0623	0.0261	0.0894	0.0765	0.083	0.0699
Antimony (Sb)	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.00016	0.00046	0.00049	0.00098	0.00069	0.00044	0.00025	0.0002	0.00023	0.00025	0.00041	0.00023	0.00026	0.00025
Barium (Ba)	0.0334	0.0291	0.0302	0.0554	0.0447	0.0289	0.0556	0.0333	0.0231	0.0702	0.0471	0.0252	0.0255	0.0228
Beryllium (Be)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	<0.010	0.011	0.011	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.0000098	0.0000061	0.0000057	0.0000105	0.0000083	<0.0000050	0.0000177	0.000009	0.0000064	0.0000238	0.0000134	<0.0000050	0.0000055	0.0000053
Calcium (Ca)	10.5	17.9	19	11.1	12	20.5	20.1	10.6	9.09	17.3	15.3	8.94	8.86	9.21
Chromium (Cr)	0.00013	0.00043	0.00043	0.00063	0.00081	0.00034	0.00019	0.00011	0.00014	<0.00010	0.00018	0.00015	0.00017	0.00017
Cobalt (Co)	<0.00010	<0.00010	<0.00010	0.00012	0.00016	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.00114	0.00227	0.00231	0.00342	0.00353	0.00253	0.00286	0.00139	0.00139	0.00289	0.00204	0.00113	0.00139	0.0011
Iron (Fe)	0.105	0.086	0.089	0.371	0.476	0.105	0.062	0.09	0.094	0.037	0.117	0.106	0.11	0.104
Lead (Pb)	<0.000050	<0.000050	<0.000050	0.000094	0.000103	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	1.55	3.56	3.62	6.86	6.42	4.28	3.72	1.75	1.72	3.17	5.84	1.73	1.76	1.73
Manganese (Mn)	0.0108	0.00165	0.00168	0.00522	0.00835	0.00524	0.00256	0.0092	0.00687	0.00096	0.00284	0.0057	0.00592	0.00593
Mercury (Hg)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000085	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.000708	0.000077	0.000079	0.000076	0.000121	0.000101	0.000312	0.000563	0.000335	0.000384	0.000103	0.000263	0.000295	0.000338
Nickel (Ni)	<0.00050	<0.00050	<0.00050	<0.00050	0.00089	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.284	0.158	0.154	0.247	0.328	0.215	0.293	0.287	0.376	0.283	0.355	0.354	0.356	0.35
Selenium (Se)	0.000074	0.000058	0.000059	0.000064	0.000102	0.000067	0.000073	0.000085	<0.000050	0.000099	0.000054	<0.000050	<0.000050	<0.000050
Silicon (Si)	2.77	4	4.06	4.04	4.19	3.95	3.11	2.78	3.03	2.9	3.67	3.11	3.1	3.1
Silver (Ag)	<0.000010	<0.000010	<0.000010	0.000013	0.000016	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	<2.0	3.2	3.1	3.2	3.9	3.7	2.4	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0566	0.0974	0.0973	0.0858	0.0809	0.0995	0.0726	0.0558	0.0502	0.0674	0.0463	0.0466	0.0457	0.0496
Sulphur (S)	1.52	0.62	0.54	<0.50	1.16	0.74	5.82	1.9	1.68	6.51	1.54	1.42	1.52	1.44
Thallium (Tl)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	<0.010	<0.010	<0.010	0.02	0.025	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.000046	0.000095	0.000105	0.000027	0.000037	0.000101	0.000057	0.000043	0.00003	0.00005	0.000018	0.00003	0.000031	0.000032
Vanadium (V)	<0.00050	0.001	0.00096	0.00121	0.00148	0.00081	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	<0.0010	<0.0010	<0.0010	0.0027	0.0019	<0.0010	0.0015	<0.0010	<0.0010	0.0017	0.0012	<0.0010	<0.0010	<0.0010
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acridine	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-A. Water Quality Analytical Results, Tenas Project, 2017 to 2019

Site	WQS08	WQS01	WQS01	WQS03	WQS03-DS	WQS04B	WQS05	WQS09	WQS11	WQS13	WQS17	WQS11-US	WQS11-US	WQS12
Date	4-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	5-Nov-2019	6-Nov-2019	6-Nov-2019	6-Nov-2019
Time	1:59:00 PM	10:14:00 AM	10:14:00 AM	10:59:00 AM	3:40:00 PM	2:10:00 PM	2:44:00 PM	3:09:00 PM	1:09:00 PM	11:39:00 AM	12:20:00 PM	9:29:00 AM	9:29:00 AM	10:09:00 AM
QAQC	Regular	Field Duplicate	Field Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Field Duplicate	Field Duplicate	Regular
ALS Sample ID	L2378791-11	L2378791-16	L2378791-1	L2378791-3	L2378791-4	L2378791-2	L2378791-8	L2378791-12	L2378791-6	L2378791-13	L2378791-10	L2378791-17	L2378791-7	L2378791-9
Polycyclic Aromatic Hydrocarbons (cont'd)														
Benz[a]anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[a]pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[g,h,i]perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz[a,h]anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno[1,2,3-c,d]pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quinoline	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acridine d9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene d12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene d8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene d10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aggregate Organics														
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.0022	<0.0010	<0.0010	0.0035	0.0016	0.0067	0.0017	0.0041	<0.0010	0.0032	0.0038	0.002	0.0022	<0.0010
Volatile Organic Compounds														
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons														
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological														
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)														
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Fe Species														
Ferrous.Dissolved	-	-	-	0.099	-	0.061	-	-	-	-	-	-	-	-
Ferric.Dissolved	-	-	-	0.272	-	0.044	-	-	-	-	-	-	-	-

Appendix 8-B *Sample-specific Assumptions for Hardness, pH,
Dissolved Organic Carbon, Field Temperature and
Chloride*

Appendix 8-B. Sample-specific Assumptions for Hardness, pH, Dissolved Organic Carbon, Field Temperature and Chloride

				Hardness (mg/L)		pH (pH unit)		Dissolved Organic Carbon (mg/L)		Field Temperature (°C)		Chloride (mg/L)	
Waterbody	Site	Date	Season	Value	Description	Value	Description	Value	Description	Value	Description	Value	Description
Bulkley River	E246125	2002-08-08	Summer	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	12.1	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-08-14	Summer	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	12.1	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-08-20	Summer	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	12.1	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-08-27	Summer	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	12.1	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-09-03	Summer	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	12.1	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-10-07	Winter	29.5	Median by waterbody	-	-	1.96	Median by waterbody	2	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-10-15	Winter	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	2	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-10-21	Winter	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	2	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-10-28	Winter	29.5	Median by waterbody	-	-	1.96	Median by waterbody	2	Median by waterbody and season	-	-
Bulkley River	E246125	2002-11-03	Winter	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	2	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-11-12	Winter	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	2	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-11-18	Winter	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	2	Median by waterbody and season	0.5	Median by site
Bulkley River	E246125	2002-11-25	Winter	29.5	Median by waterbody	7.7	Median by site	1.96	Median by waterbody	2	Median by waterbody and season	0.5	Median by site
Goathorn Creek	E242647	2004-09-02	Summer	64.867	Median by site	7.9	Median by site	1.8	Median by site	8.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2006-05-17	Summer	77.946	Median by site	-	-	1.9	Median by site	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2006-05-17	Summer	64.867	Median by site	-	-	1.8	Median by site	8.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2006-06-15	Summer	77.946	Median by site	-	-	1.9	Median by site	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2006-06-15	Summer	64.867	Median by site	-	-	1.8	Median by site	8.1	Median by waterbody and season	-	-
Telkwa River	400187	2006-07-19	Summer	49.201	Median by site	-	-	1.6	Median by site	8.8	Median by waterbody and season	-	-
Tenas Creek	E242646	2006-07-19	Summer	77.946	Median by site	-	-	1.9	Median by site	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2006-07-19	Summer	64.867	Median by site	-	-	1.8	Median by site	8.1	Median by waterbody and season	-	-
Telkwa River	400187	2006-08-14	Summer	49.201	Median by site	-	-	1.6	Median by site	8.8	Median by waterbody and season	-	-
Tenas Creek	E242646	2006-08-14	Summer	77.946	Median by site	-	-	1.9	Median by site	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2006-08-14	Summer	64.867	Median by site	-	-	1.8	Median by site	8.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2006-08-23	Summer	77.946	Median by site	8.1	Median by site	1.9	Median by site	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2006-08-23	Summer	64.867	Median by site	7.9	Median by site	1.8	Median by site	8.1	Median by waterbody and season	-	-
Telkwa River	400187	2006-09-06	Summer	49.201	Median by site	-	-	1.6	Median by site	8.8	Median by waterbody and season	-	-
Tenas Creek	E242646	2006-09-06	Summer	77.946	Median by site	-	-	1.9	Median by site	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2006-09-06	Summer	64.867	Median by site	-	-	1.8	Median by site	8.1	Median by waterbody and season	-	-
Telkwa River	400187	2006-10-16	Winter	49.201	Median by site	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2006-10-16	Winter	77.946	Median by site	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2006-10-16	Winter	64.867	Median by site	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2006-11-14	Winter	49.201	Median by site	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2006-11-14	Winter	77.946	Median by site	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2006-11-14	Winter	64.867	Median by site	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2006-12-18	Winter	49.201	Median by site	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2006-12-18	Winter	77.946	Median by site	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2006-12-18	Winter	64.867	Median by site	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2007-01-22	Winter	49.201	Median by site	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2007-01-22	Winter	77.946	Median by site	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2007-01-22	Winter	64.867	Median by site	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2007-02-12	Winter	49.201	Median by site	-	-	-	-	0.1	Median by waterbody and season	-	-

Appendix 8-B. Sample-specific Assumptions for Hardness, pH, Dissolved Organic Carbon, Field Temperature and Chloride

Waterbody	Site	Date	Season	Hardness (mg/L)		pH (pH unit)		Dissolved Organic Carbon (mg/L)		Field Temperature (°C)		Chloride (mg/L)	
				Value	Description	Value	Description	Value	Description	Value	Description	Value	Description
Tenas Creek	E242646	2007-02-12	Winter	77.946	Median by site	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2007-02-12	Winter	64.867	Median by site	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2007-03-19	Winter	49.201	Median by site	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2007-03-19	Winter	77.946	Median by site	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2007-03-19	Winter	64.867	Median by site	-	-	-	-	0.2	Median by waterbody and season	-	-
Bulkley River	400435	2007-09-26	Summer	29.5	Median by waterbody	7.69	Median by waterbody	1.96	Median by waterbody	12.6	Median by site and season	-	-
Tenas Creek	E242646	2007-12-17	Winter	-	-	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2007-12-17	Winter	-	-	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2008-01-22	Winter	-	-	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-01-22	Winter	-	-	-	-	-	-	0.3	Median by waterbody and season	-	-
Telkwa River	400187	2008-03-18	Winter	-	-	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-03-18	Winter	-	-	-	-	-	-	0.3	Median by waterbody and season	-	-
Telkwa River	400187	2008-04-15	Winter	-	-	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-04-15	Winter	-	-	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2008-04-15	Winter	-	-	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2008-06-17	Summer	-	-	-	-	-	-	8.8	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-06-17	Summer	-	-	-	-	-	-	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2008-06-17	Summer	-	-	-	-	-	-	8.1	Median by waterbody and season	-	-
Telkwa River	400187	2008-07-21	Summer	-	-	-	-	-	-	8.8	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-07-21	Summer	-	-	-	-	-	-	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2008-07-21	Summer	-	-	-	-	-	-	8.1	Median by waterbody and season	-	-
Telkwa River	400187	2008-08-18	Summer	-	-	-	-	-	-	8.8	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-08-18	Summer	-	-	-	-	-	-	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2008-08-18	Summer	-	-	-	-	-	-	8.1	Median by waterbody and season	-	-
Telkwa River	400187	2008-09-15	Summer	-	-	-	-	-	-	8.8	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-09-15	Summer	-	-	-	-	-	-	7.05	Median by waterbody and season	-	-
Goathorn Creek	E242647	2008-09-15	Summer	-	-	-	-	-	-	8.1	Median by waterbody and season	-	-
Telkwa River	400187	2008-10-20	Winter	-	-	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-10-20	Winter	-	-	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2008-10-20	Winter	-	-	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2008-11-19	Winter	-	-	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-11-19	Winter	-	-	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2008-11-19	Winter	-	-	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2008-12-15	Winter	-	-	-	-	-	-	0.1	Median by waterbody and season	-	-
Tenas Creek	E242646	2008-12-15	Winter	-	-	-	-	-	-	0.3	Median by waterbody and season	-	-
Goathorn Creek	E242647	2008-12-15	Winter	-	-	-	-	-	-	0.2	Median by waterbody and season	-	-
Telkwa River	400187	2009-02-17	Winter	-	-	-	-	-	-	0.1	Median by waterbody and season	-	-
Telkwa River	400187	2009-03-15	Winter	-	-	-	-	-	-	0.1	Median by waterbody and season	-	-
Bulkley River	400434	2012-08-29	Summer	29.5	Median by waterbody	7.69	Median by waterbody	1.96	Median by waterbody	12.7	Median by site and season	0.88	Median by site
Bulkley River	400435	2012-08-29	Summer	29.5	Median by waterbody	7.69	Median by waterbody	1.96	Median by waterbody	12.6	Median by site and season	-	-
Bulkley River	400434	2012-09-06	Summer	29.5	Median by waterbody	7.69	Median by waterbody	1.96	Median by waterbody	-	-	0.88	Median by site
Bulkley River	400435	2012-09-06	Summer	29.5	Median by waterbody	7.69	Median by waterbody	1.96	Median by waterbody	-	-	0.55	Median by site

Appendix 8-B. Sample-specific Assumptions for Hardness, pH, Dissolved Organic Carbon, Field Temperature and Chloride

Waterbody	Site	Date	Season	Hardness (mg/L)		pH (pH unit)		Dissolved Organic Carbon (mg/L)		Field Temperature (°C)		Chloride (mg/L)	
				Value	Description	Value	Description	Value	Description	Value	Description	Value	Description
Bulkley River	400434	2012-09-18	Summer	29.5	Median by waterbody	7.69	Median by waterbody	1.96	Median by waterbody	-	-	-	-
Bulkley River	400435	2012-09-18	Summer	29.5	Median by waterbody	7.69	Median by waterbody	1.96	Median by waterbody	-	-	-	-
Bulkley River	400434	2012-09-26	Summer	29.5	Median by waterbody	7.69	Median by waterbody	1.96	Median by waterbody	-	-	0.88	Median by site
Bulkley River	400435	2012-09-26	Summer	29.5	Median by waterbody	7.69	Median by waterbody	1.96	Median by waterbody	-	-	0.55	Median by site
Telkwa River	WQS10	2017-05-03	Summer	-	-	-	-	-	-	9.9	Median by site and season	-	-
Bulkley River	WQS11	2018-06-20	Summer	-	-	-	-	-	-	13.4	Median by site and season	-	-
Bulkley River	WQS12	2018-10-02	Winter	-	-	-	-	-	-	1.3	Median by site and season	-	-
Goathorn Creek	WQS06-US	2018-12-12	Winter	-	-	-	-	-	-	0.1	Median by site and season	-	-
Bulkley River	WQS11-US	2019-08-24	Summer	29.4	Median by site	-	-	2.06	Median by site	10.6	Median by site and season	-	-
Bulkley River	WQS12	2019-08-24	Summer	30.6	Median by site	-	-	2.28	Median by site	11.6	Median by site and season	-	-
Telkwa River	WQS08	2019-08-25	Summer	40.1	Median by site	-	-	1.67	Median by site	8	Median by site and season	-	-
Telkwa River	WQS09	2019-08-25	Summer	46.4	Median by site	-	-	1.64	Median by site	8.6	Median by site and season	-	-
Tenas Creek	WQS04B	2019-08-25	Summer	-	-	-	-	-	-	10.8	Median by site and season	-	-
Goathorn Creek	WQS05	2019-08-25	Summer	-	-	-	-	-	-	9.1	Median by site and season	-	-
Tenas Creek	WQS01	2019-08-27	Summer	-	-	-	-	-	-	6.3	Median by site and season	-	-
Tenas Creek	WQS02	2019-08-27	Summer	-	-	-	-	-	-	6.8	Median by site and season	-	-
Four Creek	WQS03-DS	2019-10-04	Winter	-	-	-	-	-	-	0.35	Median by site and season	-	-
Goathorn Creek	WQS06-US	2019-10-04	Winter	-	-	-	-	-	-	0.1	Median by site and season	-	-
Four Creek	WQS18	2019-10-04	Winter	-	-	-	-	-	-	0.2	Median by waterbody and season	-	-
Helps Creek	WQS16	2019-10-06	Winter	-	-	-	-	-	-	0.15	Median by site and season	-	-
Helps Creek	WQS17	2019-10-06	Winter	-	-	-	-	-	-	0.9	Median by site and season	-	-
Goathorn Creek	WQS07	2019-10-06	Winter	-	-	-	-	-	-	0.2	Median by waterbody and season	-	-

Notes:
"- " = no assumption (measured data available).

Appendix 8-C *Water Quality Blank Results, Tenas Project,
2017 to 2019*

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Field Blank												
Date		3-May-2017	20-Jun-2017	27-Jul-2017	17-Aug-2017	26-Sep-2017	18-Oct-2017	21-Nov-2017	14-Dec-2017	17-Jan-2018	20-Feb-2018	21-Mar-2018	17-Apr-2018	24-May-2018
Time		-	-	-	12:00	10:40	-	-	-	-	-	9:50	13:49	13:14
ALS Sample ID		L1922134-5	L1947234-14	L1966679-14	L1977457-13	L1998999-13	L2010562-1	L2027227-9	L2036162-16	L2047188-14	L2059721-12	L2071214-13	L2082790-7	L2100747-16
Physical Tests														
Colour, True	5	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (µS/cm)	2	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO ₃)	0.5	<0.50	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
pH	0.1	-	-	5.87	5.23	5.77	5.35	5.76	5.96	5.42	5.44	6.87	5.19	6.09
Total Suspended Solids	3	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	13 - 20	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity (NTU)	0.1	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acidity (as CaCO ₃)	1	-	-	1.90	1.80	2.00	2.30	2.10	2.00	1.80	1.30	1.60	1.90	1.40
Alkalinity, Total (as CaCO ₃)	1-2	-	-	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.000
Anions														
Bromide (Br)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphate (SO ₄)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Nutrients														
Total Nitrogen	0.03	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Total Kjeldahl Nitrogen	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ammonia as N	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.00920
Nitrate (as N)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.002 - 0.02	0.00360	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Dissolved Orthophosphate (as P)	0.001	-	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon														
Total Organic Carbon	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Organic Carbon	0.5	0.520	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Inorganic Carbon	0.5	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	0.5	<0.50	<0.50	-	-	-	-	-	-	-	-	-	-	-
Cyanide														
Cyanide, Total	0.001 - 0.002	<0.0010	<0.0020	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	0.002 - 0.005	<0.0050	<0.0020	-	<0.0050	-	-	-	-	-	-	-	-	-
Cyanide, Free	0.005	<0.0050	<0.0050	-	<0.0050	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminum (Al)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.0001 - 0.0004	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)	0.00005 - 0.0001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000710	0.0000750	<0.000050	<0.00010	<0.00010
Beryllium (Be)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)	0.0001 - 0.0005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.0005 - 0.004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)	0.03 - 0.09	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.00650	<0.0050	<0.0050	<0.0050	<0.0050
Manganese (Mn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000140	<0.00010	<0.00010	<0.00010	<0.00020
Mercury (Hg)	0.000005 - 0.000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.00005 - 0.0005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site		Field Blank												
Date		3-May-2017	20-Jun-2017	27-Jul-2017	17-Aug-2017	26-Sep-2017	18-Oct-2017	21-Nov-2017	14-Dec-2017	17-Jan-2018	20-Feb-2018	21-Mar-2018	17-Apr-2018	24-May-2018
Time	Detection Limit	-	-	-	12:00	10:40	-	-	-	-	-	9:50	13:49	13:14
ALS Sample ID	Range	L1922134-5	L1947234-14	L1966679-14	L1977457-13	L1998999-13	L2010562-1	L2027227-9	L2036162-16	L2047188-14	L2059721-12	L2071214-13	L2082790-7	L2100747-16
Total Metals (cont'd)														
Potassium (K)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Selenium (Se)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)	0.00001 - 0.00002	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulphur (S)	0.5 - 2	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.01 - 0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium (V)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals														
Aluminum (Al)	0.003	<0.0030	<0.0030	-	<0.0030	<0.0030	-	<0.0030	-	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	0.0001	<0.00010	<0.00010	-	<0.00010	<0.00010	-	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.0001	<0.00010	<0.00010	-	<0.00010	<0.00010	-	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)	0.00005 - 0.0001	<0.000050	<0.000050	-	<0.000050	<0.000050	-	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.00010	<0.00010
Beryllium (Be)	0.0001	<0.00010	<0.00010	-	<0.00010	<0.00010	-	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	0.00005	<0.000050	<0.000050	-	<0.000050	<0.000050	-	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.01	<0.010	<0.010	-	<0.010	<0.010	-	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.000005	<0.0000050	<0.0000050	-	<0.0000050	<0.0000050	-	<0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	0.05	<0.050	<0.050	-	<0.050	<0.050	-	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)	0.0001	<0.00010	<0.00010	-	<0.00010	<0.00010	-	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.0001	<0.00010	<0.00010	-	<0.00010	<0.00010	-	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.0005	<0.00050	<0.00050	-	<0.00050	<0.00050	-	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)	0.03	<0.030	<0.030	-	<0.030	<0.030	-	<0.030	-	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	0.00005	<0.000050	<0.000050	-	<0.000050	<0.000050	-	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.001	<0.0010	<0.0010	-	<0.0010	<0.0010	-	<0.0010	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	0.005	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Manganese (Mn)	0.0001 - 0.00015	<0.00010	<0.00010	-	<0.00010	<0.00010	-	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)	0.000005	<0.0000050	<0.0000050	-	<0.0000050	<0.0000050	-	<0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.00005	<0.000050	<0.000050	-	<0.000050	<0.000050	-	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)	0.0005	<0.00050	<0.00050	-	<0.00050	<0.00050	-	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	0.3	<0.30	<0.30	-	<0.30	<0.30	-	<0.30	-	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.05	<0.050	<0.050	-	<0.050	<0.050	-	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050
Selenium (Se)	0.00005	<0.000050	<0.000050	-	<0.000050	<0.000050	-	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)	0.05	<0.050	<0.050	-	<0.050	<0.050	-	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050
Silver (Ag)	0.00001	<0.000010	<0.000010	-	<0.000010	<0.000010	-	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2	<2.0	<2.0	-	<2.0	<2.0	-	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0002	<0.00020	<0.00020	-	<0.00020	<0.00020	-	<0.00020	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulphur (S)	0.5	-	-	-	<0.50	<0.50	-	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)	0.00001	<0.000010	<0.000010	-	<0.000010	<0.000010	-	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	0.0001	<0.00010	<0.00010	-	<0.00010	<0.00010	-	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.01	<0.010	<0.010	-	<0.010	<0.010	-	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.00001	<0.000010	<0.000010	-	<0.000010	<0.000010	-	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium (V)	0.0005	<0.00050	<0.00050	-	<0.00050	<0.00050	-	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	0.001 - 0.003	<0.0030	<0.0030	-	<0.0030	<0.0030	-	<0.0030	-	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0.00001 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	0.00001 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010			

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit	Field Blank												
Date		3-May-2017	20-Jun-2017	27-Jul-2017	17-Aug-2017	26-Sep-2017	18-Oct-2017	21-Nov-2017	14-Dec-2017	17-Jan-2018	20-Feb-2018	21-Mar-2018	17-Apr-2018	24-May-2018
Time		-	-	-	12:00	10:40	-	-	-	-	-	9:50	13:49	13:14
ALS Sample ID	Range	L1922134-5	L1947234-14	L1966679-14	L1977457-13	L1998999-13	L2010562-1	L2027227-9	L2036162-16	L2047188-14	L2059721-12	L2071214-13	L2082790-7	L2100747-16
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)														
Benzo[a]pyrene	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	0.00001 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	0.00005	<0.000050	<0.000050	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	0.00001 - 0.00005	-	-	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	0.000015	-	-	-	-	-	-	-	-	-	-	-	<0.000015	<0.000015
Benzo[k]fluoranthene	0.00001 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	0.00001 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	0.000005 - 0.000006	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	0.00001 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	0.00001 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	0.00001 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	0.00005	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	0.00005	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	0.00002 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	0.00001 - 0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	-	112	72.0	93.2	87.1	94.7	83.1	76.7	102	98.8	97.0	102	74.5	88.3
Chrysene d12	-	110	76.7	123	80.0	113	91.2	121	118	88.8	83.0	93.2	70.8	85.7
Naphthalene d8	-	102	83.8	92.0	92.4	93.5	79.0	98.3	106	118	98.6	95.2	86.9	95.2
Phenanthrene d10	-	118	76.8	96.4	97.5	98.7	86.2	86.4	118	121	108	112	79.1	96.8
Aggregate Organics														
BOD	2	<2.0	<2.0	<2.0	-	-	-	-	-	-	-	-	-	-
COD	20	<20	<20	<20	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.001	<0.0010	-	-	<0.0010	<0.0010	<0.0010	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds														
Benzene	0.0005	<0.00050	<0.00050	-	-	-	-	<0.00050	-	-	<0.00050	-	-	<0.00050
Ethylbenzene	0.0005	<0.00050	<0.00050	-	-	-	-	<0.00050	-	-	<0.00050	-	-	<0.00050
Methyl t-butyl ether (MTBE)	0.0005	<0.00050	<0.00050	-	-	-	-	<0.00050	-	-	<0.00050	-	-	<0.00050
Styrene	0.0005	<0.00050	<0.00050	-	-	-	-	<0.00050	-	-	<0.00050	-	-	<0.00050
Toluene	0.00045	<0.00045	<0.00045	-	-	-	-	<0.00045	-	-	<0.00045	-	-	<0.00045
ortho-Xylene	0.0005	<0.00050	<0.00050	-	-	-	-	<0.00050	-	-	<0.00050	-	-	<0.00050
meta- & para-Xylene	0.0005	<0.00050	<0.00050	-	-	-	-	<0.00050	-	-	<0.00050	-	-	<0.00050
Xylene	0.00075	<0.00075	<0.00075	-	-	-	-	<0.00075	-	-	<0.00075	-	-	<0.00075
4-Bromofluorobenzene (SS)	-	100	86.6	-	-	-	-	70.2	-	-	92.1	-	-	93.6
1,4-Difluorobenzene (SS)	-	101	94.8	-	-	-	-	99.7	-	-	97.9	-	-	101
Hydrocarbons														
Volatile Hydrocarbons (VH6-10)	0.1	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	0.1	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	99.6	93.2	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological														
Ra-226	0.0054 - 0.0073	-	-	-	<0.0040	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)														
Selenium +4	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
Shaded cells indicate detectable concentrations.

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Field Blank												
Date		30-May-2018	5-Jun-2018	13-Jun-2018	20-Jun-2018	24-Jul-2018	21-Aug-2018	25-Sep-2018	2-Oct-2018	11-Oct-2018	16-Oct-2018	22-Oct-2018	21-Nov-2018	12-Dec-2018
Time		14:10	0:00	15:15	0:00	14:12	-	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2104191-9	L2107408-9	L2112729-9	L2116657-16	L2136642-16	L2152033-18	L2172821-22	L2175314-9	L2180208-9	L2182796-9	L2186826-21	L2200625-19	L2210255-19
Physical Tests														
Colour, True	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (µS/cm)	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO ₃)	0.5	<0.50	<0.50	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
pH	0.1	5.75	5.72	5.92	5.46	5.81	5.76	5.65	5.80	5.54	5.48	5.89	5.86	5.28
Total Suspended Solids	3	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	13 - 20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity (NTU)	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.110	<0.10	<0.10
Acidity (as CaCO ₃)	1	1.50	1.50	1.40	1.80	1.60	1.40	2.20	1.90	2.00	2.40	2.20	2.40	1.30
Alkalinity, Total (as CaCO ₃)	1-2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anions														
Bromide (Br)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphate (SO ₄)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Nutrients														
Total Nitrogen	0.03	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Total Kjeldahl Nitrogen	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ammonia as N	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.002 - 0.02	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.00260	<0.0020	<0.0020
Dissolved Orthophosphate (as P)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon														
Total Organic Carbon	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Organic Carbon	0.5	<0.50	<0.50	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Inorganic Carbon	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide														
Cyanide, Total	0.001 - 0.002	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	0.002 - 0.005	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminum (Al)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	0.00300	0.00790	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.0001 - 0.0004	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)	0.00005 - 0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	<0.00010	0.000210	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Beryllium (Be)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)	0.0001 - 0.0005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.0005 - 0.004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)	0.03 - 0.09	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Manganese (Mn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000320	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)	0.000005 - 0.000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.00005 - 0.0005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Field Blank												
Date		30-May-2018	5-Jun-2018	13-Jun-2018	20-Jun-2018	24-Jul-2018	21-Aug-2018	25-Sep-2018	2-Oct-2018	11-Oct-2018	16-Oct-2018	22-Oct-2018	21-Nov-2018	12-Dec-2018
Time		14:10	0:00	15:15	0:00	14:12	-	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2104191-9	L2107408-9	L2112729-9	L2116657-16	L2136642-16	L2152033-18	L2172821-22	L2175314-9	L2180208-9	L2182796-9	L2186826-21	L2200625-19	L2210255-19
Total Metals (cont'd)														
Potassium (K)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Selenium (Se)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)	0.00001 - 0.00002	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulphur (S)	0.5 - 2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.01 - 0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium (V)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals														
Aluminum (Al)	0.003	<0.0030	<0.0030	-	-	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	0.0001	<0.00010	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.0001	<0.00010	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)	0.00005 - 0.0001	<0.00010	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Beryllium (Be)	0.0001	<0.00010	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	0.00005	<0.000050	<0.000050	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.01	<0.010	<0.010	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.000005	<0.0000050	<0.0000050	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	0.05	<0.050	<0.050	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)	0.0001	<0.00010	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.0001	<0.00010	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.0005	<0.00050	<0.00050	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)	0.03	<0.030	<0.030	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	0.00005	<0.000050	<0.000050	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.001	<0.0010	<0.0010	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	0.005	<0.0050	<0.0050	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Manganese (Mn)	0.0001 - 0.00015	<0.00010	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)	0.000005	<0.0000050	<0.0000050	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.00005	<0.000050	<0.000050	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)	0.0005	<0.00050	<0.00050	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	0.3	<0.30	<0.30	-	-	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)	0.05	<0.050	<0.050	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Selenium (Se)	0.00005	<0.000050	<0.000050	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)	0.05	<0.050	<0.050	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silver (Ag)	0.00001	<0.000010	<0.000010	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2	<2.0	<2.0	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0002	<0.00020	<0.00020	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulphur (S)	0.5	<0.50	<0.50	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)	0.00001	<0.000010	<0.000010	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	0.0001	<0.00010	<0.00010	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.01	<0.010	<0.010	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.00001	<0.000010	<0.000010	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium (V)	0.0005	<0.00050	<0.00050	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	0.001 - 0.003	<0.0030	<0.0030	-	-	<0.0010	<0.0010</							

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Field Blank												
Date		30-May-2018	5-Jun-2018	13-Jun-2018	20-Jun-2018	24-Jul-2018	21-Aug-2018	25-Sep-2018	2-Oct-2018	11-Oct-2018	16-Oct-2018	22-Oct-2018	21-Nov-2018	12-Dec-2018
Time		14:10	0:00	15:15	0:00	14:12	-	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2104191-9	L2107408-9	L2112729-9	L2116657-16	L2136642-16	L2152033-18	L2172821-22	L2175314-9	L2180208-9	L2182796-9	L2186826-21	L2200625-19	L2210255-19
Polycyclic Aromatic Hydrocarbons (cont'd)														
Benzo[a]pyrene	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	0.000005 - 0.000006	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000015	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	0.00002 - 0.00005	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	-	93.9	82.2	109	78.1	74.5	88.0	77.3	105	77.2	93.3	81.1	104	80.9
Chrysene d12	-	77.0	74.8	74.3	65.1	82.0	109	81.3	91.0	91.7	112	98.0	97.4	95.7
Naphthalene d8	-	95.8	93.0	95.1	86.2	82.6	103	87.3	122	83.2	97.6	100	108	96.0
Phenanthrene d10	-	94.0	92.4	115	89.4	87.8	106	89.8	107	89.7	104	98.5	119	91.2
Aggregate Organics														
BOD	2	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00160	<0.0010	<0.0010	<0.0010	0.00190	<0.0010	<0.0010
Volatile Organic Compounds														
Benzene	0.0005	-	-	-	-	-	<0.00050	-	-	-	-	-	<0.00050	-
Ethylbenzene	0.0005	-	-	-	-	-	<0.00050	-	-	-	-	-	<0.00050	-
Methyl t-butyl ether (MTBE)	0.0005	-	-	-	-	-	<0.00050	-	-	-	-	-	<0.00050	-
Styrene	0.0005	-	-	-	-	-	<0.00050	-	-	-	-	-	<0.00050	-
Toluene	0.00045	-	-	-	-	-	<0.00045	-	-	-	-	-	<0.00045	-
ortho-Xylene	0.0005	-	-	-	-	-	<0.00050	-	-	-	-	-	<0.00050	-
meta- & para-Xylene	0.0005	-	-	-	-	-	<0.00050	-	-	-	-	-	<0.00050	-
Xylene	0.00075	-	-	-	-	-	<0.00075	-	-	-	-	-	<0.00075	-
4-Bromofluorobenzene (SS)	-	-	-	-	-	-	76.5	-	-	-	-	-	90.3	-
1,4-Difluorobenzene (SS)	-	-	-	-	-	-	78.4	-	-	-	-	-	95.0	-
Hydrocarbons														
Volatile Hydrocarbons (VH6-10)	0.1	-	-	-	-	-	<0.10	-	-	-	-	-	-	-
VPH (C6-C10)	0.1	-	-	-	-	-	<0.10	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	83.1	-	-	-	-	-	-	-
EPH10-19	0.25	-	-	-	-	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32	0.25	-	-	-	-	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH	0.25	-	-	-	-	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH	0.25	-	-	-	-	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	-	-	-	-	-	96.3	-	99.8	101	96.7	115	96.3	103	89.4
Radiological														
Ra-226	0.0054 - 0.0073	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)														
Selenium +4	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
Shaded cells indicate detectable concentrations.

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Field Blank					Travel Blank							
Date		22-Jan-2019	20-Feb-2019	13-Mar-2019	30-Apr-2019	5-Nov-2019	3-May-2017	21-Jun-2017	27-Jul-2017	17-Aug-2017	26-Sep-2017	18-Oct-2017	28-Nov-2017	14-Dec-2017
Time		15:50	-	11:10	-	14:44	-	-	-	-	10:40	-	-	-
ALS Sample ID		L2224631-19	L2235919-19	L2244461-19	L2266761-17	L2378791-15	L1922134-6	L1947234-12	L1966679-13	L1977457-14	L1998999-14	L2010562-2	L2029323-5	L2036162-15
Physical Tests														
Colour, True	5	<5.0	<5.0	<5.0	<5.0	<5.0	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (µS/cm)	2	<2.0	<2.0	<2.0	<2.0	<2.0	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO ₃)	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	-	<0.50	-	-	<0.50	-	-	<0.50
pH	0.1	5.80	5.39	5.64	5.42	5.49	-	-	5.93	5.25	5.71	5.22	5.91	6.31
Total Suspended Solids	3	<3.0	<3.0	<3.0	<3.0	<3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	13 - 20	<10	<10	<10	<10	<10	-	-	<10	<10	<10	<10	<10	<10
Turbidity (NTU)	0.1	<0.10	<0.10	<0.10	<0.10	0.29	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acidity (as CaCO ₃)	1	2.40	2.00	1.90	1.80	2.20	-	-	1.90	1.80	2.00	2.40	1.90	2.00
Alkalinity, Total (as CaCO ₃)	1-2	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anions														
Bromide (Br)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphate (SO ₄)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Nutrients														
Total Nitrogen	0.03	<0.030	<0.030	<0.030	<0.030	<0.030	-	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Total Kjeldahl Nitrogen	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ammonia as N	0.005	<0.0050	<0.0050	0.00870	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0192	0.00510	<0.0050	<0.0050
Nitrate (as N)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.002 - 0.02	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Dissolved Orthophosphate (as P)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon														
Total Organic Carbon	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Organic Carbon	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	<0.50	<0.50	<0.50	<0.50
Total Inorganic Carbon	0.5	-	-	-	-	-	<0.50	<0.50	<0.50	-	-	-	-	-
Dissolved Inorganic Carbon	0.5	-	-	-	-	-	<0.50	-	-	-	-	-	-	-
Cyanide														
Cyanide, Total	0.001 - 0.002	-	-	-	-	-	<0.0010	<0.0020	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	0.002 - 0.005	-	-	-	-	-	<0.0050	<0.0020	-	<0.0050	-	-	-	-
Cyanide, Free	0.005	-	-	-	-	-	<0.0050	<0.0050	-	<0.0050	-	-	-	-
Total Metals														
Aluminum (Al)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.0001 - 0.0004	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)	0.00005 - 0.0001	<0.00010	0.00140	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00010
Beryllium (Be)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)	0.0001 - 0.0005	<0.00010	0.000270	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.0005 - 0.004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)	0.03 - 0.09	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Manganese (Mn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)	0.000005 - 0.000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.00005 - 0.0005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Field Blank					Travel Blank							
Date		22-Jan-2019	20-Feb-2019	13-Mar-2019	30-Apr-2019	5-Nov-2019	3-May-2017	21-Jun-2017	27-Jul-2017	17-Aug-2017	26-Sep-2017	18-Oct-2017	28-Nov-2017	14-Dec-2017
Time		15:50	-	11:10	-	14:44	-	-	-	-	10:40	-	-	-
ALS Sample ID		L2224631-19	L2235919-19	L2244461-19	L2266761-17	L2378791-15	L1922134-6	L1947234-12	L1966679-13	L1977457-14	L1998999-14	L2010562-2	L2029323-5	L2036162-15
Total Metals (cont'd)														
Potassium (K)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Selenium (Se)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)	0.00001 - 0.00002	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulphur (S)	0.5 - 2	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.01 - 0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium (V)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals														
Aluminum (Al)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	-	-	-	-	<0.0030	-	-	-
Antimony (Sb)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	-	-	-
Arsenic (As)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	-	-	-
Barium (Ba)	0.00005 - 0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	0.0000860	-	-	-
Beryllium (Be)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	-	-	-
Bismuth (Bi)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	-	-	-
Boron (B)	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	<0.010	-	-	-
Cadmium (Cd)	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-	-	-	-	<0.0000050	-	-	-
Calcium (Ca)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	-	<0.050	-	-	-
Chromium (Cr)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	-	-	-
Cobalt (Co)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	-	-	-
Copper (Cu)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	-	-	-
Iron (Fe)	0.03	<0.030	<0.030	<0.030	<0.030	<0.030	-	-	-	-	<0.030	-	-	-
Lead (Pb)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	-	-	-
Lithium (Li)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	-	-	-	<0.0010	-	-	-
Magnesium (Mg)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	<0.0050	-	-	-
Manganese (Mn)	0.0001 - 0.00015	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	-	-	-
Mercury (Hg)	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-	-	-	-	<0.0000050	-	-	-
Molybdenum (Mo)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	-	-	-
Nickel (Ni)	0.00005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	-	-	-
Phosphorus (P)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	-	-	-	-	<0.30	-	-	-
Potassium (K)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	-	<0.050	-	-	-
Selenium (Se)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	<0.000050	-	-	-
Silicon (Si)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	-	<0.050	-	-	-
Silver (Ag)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	-	-	-	<0.000010	-	-	-
Sodium (Na)	2	<2.0	<2.0	<2.0	<2.0	<2.0	-	-	-	-	<2.0	-	-	-
Strontium (Sr)	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	-	-	-	<0.00020	-	-	-
Sulphur (S)	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	<0.50	-	-	-
Thallium (Tl)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	-	-	-	<0.000010	-	-	-
Tin (Sn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	-	-	-	<0.00010	-	-	-
Titanium (Ti)	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	<0.010	-	-	-
Uranium (U)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	-	-	-	<0.000010	-	-	-
Vanadium (V)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-	-	-	<0.00050	-	-	-
Zinc (Zn)	0.001 - 0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	-	-	-	<0.0030	-	-	-
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010
Benz[a]anthracene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site		Field Blank					Travel Blank								
Date		22-Jan-2019	20-Feb-2019	13-Mar-2019	30-Apr-2019	5-Nov-2019	3-May-2017	21-Jun-2017	27-Jul-2017	17-Aug-2017	26-Sep-2017	18-Oct-2017	28-Nov-2017	14-Dec-2017	
Time	Detection Limit	15:50	-	11:10	-	14:44	-	-	-	-	10:40	-	-	-	
ALS Sample ID	Range	L2224631-19	L2235919-19	L2244461-19	L2266761-17	L2378791-15	L1922134-6	L1947234-12	L1966679-13	L1977457-14	L1998999-14	L2010562-2	L2029323-5	L2036162-15	
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)															
Benzo[a]pyrene	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Benzo[g,h,i]perylene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	
Benzo[b]fluoranthene	0.00005	-	-	-	-	-	<0.000050	<0.000050	-	-	-	-	-	-	
Benzo[b,j]fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	-	-	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	
Benzo[b,j,k]fluoranthene	0.000015	<0.000015	<0.000015	<0.000015	<0.000015	-	-	-	-	-	-	-	-	-	
Benzo[k]fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	
Chrysene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	
Dibenz[a,h]anthracene	0.000005 - 0.000006	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	
Fluorene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	
Indeno[1,2,3-c,d]pyrene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	
Naphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
1-Methylnaphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	-	-	-	<0.000050	<0.000050	
2-Methylnaphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	-	-	-	-	-	-	-	<0.000050	<0.000050	
Phenanthrene	0.00002 - 0.00005	<0.000020	<0.000020	<0.000020	<0.000020	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	
Pyrene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000010	<0.000010	<0.000010	
Quinoline	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Acridine d9	-	81.7	79.2	83.6	75.5	-	115	65.8	91.4	78.9	86.9	85.0	78.8	112	
Chrysene d12	-	94.0	91.8	67.4	74.4	-	122	69.7	121	81.6	110	108	109	108	
Naphthalene d8	-	88.6	87.2	82.0	90.7	-	115	73.9	90.4	83.2	86.5	91.9	97.7	113	
Phenanthrene d10	-	96.7	87.7	101	96.4	-	122	71.2	95.5	91.8	92.5	99.2	97.1	124	
Aggregate Organics															
BOD	2	-	-	-	-	-	<2.0	<2.0	<2.0	-	-	-	-	-	
COD	20	-	-	-	-	-	<20	<20	<20	-	-	-	-	-	
Phenols (4AAP)	0.001	0.00130	<0.0010	0.00190	0.00120	0.00230	<0.0010	-	-	<0.0010	<0.0010	<0.0010	-	-	
Volatile Organic Compounds															
Benzene	0.0005	-	<0.00050	-	-	-	<0.00050	<0.00050	-	-	-	-	<0.00050	-	
Ethylbenzene	0.0005	-	<0.00050	-	-	-	<0.00050	<0.00050	-	-	-	-	<0.00050	-	
Methyl t-butyl ether (MTBE)	0.0005	-	<0.00050	-	-	-	<0.00050	<0.00050	-	-	-	-	<0.00050	-	
Styrene	0.0005	-	<0.00050	-	-	-	<0.00050	<0.00050	-	-	-	-	<0.00050	-	
Toluene	0.00045	-	<0.00045	-	-	-	<0.00045	<0.00045	-	-	-	-	<0.00045	-	
ortho-Xylene	0.0005	-	<0.00050	-	-	-	<0.00050	<0.00050	-	-	-	-	<0.00050	-	
meta- & para-Xylene	0.0005	-	<0.00050	-	-	-	<0.00050	<0.00050	-	-	-	-	<0.00050	-	
Xylene	0.00075	-	<0.00075	-	-	-	<0.00075	<0.00075	-	-	-	-	<0.00075	-	
4-Bromofluorobenzene (SS)	-	-	86.7	-	-	-	102	88.4	-	-	-	-	97.5	-	
1,4-Difluorobenzene (SS)	-	-	107	-	-	-	101	93.7	-	-	-	-	99.3	-	
Hydrocarbons															
Volatile Hydrocarbons (VH6-10)	0.1	-	-	-	-	-	<0.10	<0.10	-	-	-	-	-	-	
VPH (C6-C10)	0.1	-	-	-	-	-	<0.10	<0.10	-	-	-	-	-	-	
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	98.9	103	-	-	-	-	-	-	
EPH10-19	0.25	<0.25	-	-	-	-					-	-	-	-	
EPH19-32	0.25	<0.25	-	-	-	-					-	-	-	-	
LEPH	0.25	<0.25	-	-	-	-					-	-	-	-	
HEPH	0.25	<0.25	-	-	-	-					-	-	-	-	
2-Bromobenzotrifluoride	-	94.5	-	-	-	-					-	-	-	-	
Radiological															
Ra-226	0.0054 - 0.0073	-	-	-	-	-	-	-	-	0.00580	-	-	-	-	
Dissolved Se Species (µg/L)															
Selenium +4	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium +6	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenocyanate	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	
Unknown Se Species	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	

Notes:
All units are in mg/L unless otherwise noted.
Shaded cells indicate detectable concentrations.

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Travel Blank												
Date		17-Jan-2018	20-Feb-2018	21-Mar-2018	17-Apr-2018	24-May-2018	30-May-2018	5-Jun-2018	13-Jun-2018	20-Jun-2018	24-Jul-2018	22-Aug-2018	26-Sep-2018	2-Oct-2018
Time		-	-	-	13:49	13:14	0:00	0:00	0:00	0:00	-	-	-	0:00
ALS Sample ID		L2047188-13	L2059721-13	L2071214-14	L2082790-8	L2100747-17	L2104191-10	L2107408-10	L2112729-10	L2116657-15	L2136642-15	L2152033-17	L2172821-23	L2175314-10
Physical Tests														
Colour, True	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (µS/cm)	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO ₃)	0.5	<0.50	<0.50	-	<0.50	NA	NA	NA	NA	NA	NA	<0.50	NA	NA
pH	0.1	5.45	5.41	6.10	5.18	5.91	5.75	5.76	5.88	5.49	5.83	5.79	5.55	5.63
Total Suspended Solids	3	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	13 - 20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity (NTU)	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acidity (as CaCO ₃)	1	1.60	1.30	1.50	2.10	1.40	1.60	1.60	1.40	1.60	1.60	1.50	2.20	2.40
Alkalinity, Total (as CaCO ₃)	1-2	<1.0	<1.0	1.30	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anions														
Bromide (Br)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphate (SO ₄)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Nutrients														
Total Nitrogen	0.03	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Total Kjeldahl Nitrogen	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ammonia as N	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.015
Nitrate (as N)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.002 - 0.02	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Dissolved Orthophosphate (as P)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon														
Total Organic Carbon	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Organic Carbon	0.5	<0.50	<0.50	<0.50	<0.50	-	<0.50	-	-	-	-	-	-	-
Total Inorganic Carbon	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide														
Cyanide, Total	0.001 - 0.002	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	0.002 - 0.005	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals														
Aluminum (Al)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.0001 - 0.0004	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)	0.00005 - 0.0001	<0.000050	0.0000550	<0.000050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Beryllium (Be)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)	0.0001 - 0.0005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000130	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.0005 - 0.004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)	0.03 - 0.09	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Manganese (Mn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)	0.000005 - 0.000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.00005 - 0.0005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0000980	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Travel Blank												
Date		17-Jan-2018	20-Feb-2018	21-Mar-2018	17-Apr-2018	24-May-2018	30-May-2018	5-Jun-2018	13-Jun-2018	20-Jun-2018	24-Jul-2018	22-Aug-2018	26-Sep-2018	2-Oct-2018
Time		-	-	-	13:49	13:14	0:00	0:00	0:00	0:00	-	-	-	0:00
ALS Sample ID		L2047188-13	L2059721-13	L2071214-14	L2082790-8	L2100747-17	L2104191-10	L2107408-10	L2112729-10	L2116657-15	L2136642-15	L2152033-17	L2172821-23	L2175314-10
Total Metals (cont'd)														
Potassium (K)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Selenium (Se)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)	0.00001 - 0.00002	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulphur (S)	0.5 - 2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.01 - 0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium (V)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals														
Aluminum (Al)	0.003	-	-	-	<0.0030	-	-	-	-	-	-	-	-	-
Antimony (Sb)	0.0001	-	-	-	<0.00010	-	-	-	-	-	-	-	-	-
Arsenic (As)	0.0001	-	-	-	<0.00010	-	-	-	-	-	-	-	-	-
Barium (Ba)	0.00005 - 0.0001	-	-	-	<0.00010	-	-	-	-	-	-	-	-	-
Beryllium (Be)	0.0001	-	-	-	<0.00010	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	0.00005	-	-	-	<0.000050	-	-	-	-	-	-	-	-	-
Boron (B)	0.01	-	-	-	<0.010	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	0.000005	-	-	-	<0.0000050	-	-	-	-	-	-	-	-	-
Calcium (Ca)	0.05	-	-	-	<0.050	-	-	-	-	-	-	-	-	-
Chromium (Cr)	0.0001	-	-	-	<0.00010	-	-	-	-	-	-	-	-	-
Cobalt (Co)	0.0001	-	-	-	<0.00010	-	-	-	-	-	-	-	-	-
Copper (Cu)	0.0005	-	-	-	<0.00050	-	-	-	-	-	-	-	-	-
Iron (Fe)	0.03	-	-	-	<0.030	-	-	-	-	-	-	-	-	-
Lead (Pb)	0.00005	-	-	-	<0.000050	-	-	-	-	-	-	-	-	-
Lithium (Li)	0.001	-	-	-	<0.0010	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	0.005	-	-	-	<0.0050	-	-	-	-	-	-	-	-	-
Manganese (Mn)	0.0001 - 0.00015	-	-	-	<0.00010	-	-	-	-	-	-	-	-	-
Mercury (Hg)	0.000005	-	-	-	<0.0000050	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.00005	-	-	-	<0.000050	-	-	-	-	-	-	-	-	-
Nickel (Ni)	0.0005	-	-	-	<0.00050	-	-	-	-	-	-	-	-	-
Phosphorus (P)	0.3	-	-	-	<0.30	-	-	-	-	-	-	-	-	-
Potassium (K)	0.05	-	-	-	<0.050	-	-	-	-	-	-	-	-	-
Selenium (Se)	0.00005	-	-	-	<0.000050	-	-	-	-	-	-	-	-	-
Silicon (Si)	0.05	-	-	-	<0.050	-	-	-	-	-	-	-	-	-
Silver (Ag)	0.00001	-	-	-	<0.000010	-	-	-	-	-	-	-	-	-
Sodium (Na)	2	-	-	-	<2.0	-	-	-	-	-	-	-	-	-
Strontium (Sr)	0.0002	-	-	-	<0.00020	-	-	-	-	-	-	-	-	-
Sulphur (S)	0.5	-	-	-	<0.50	-	-	-	-	-	-	-	-	-
Thallium (Tl)	0.00001	-	-	-	<0.000010	-	-	-	-	-	-	-	-	-
Tin (Sn)	0.0001	-	-	-	<0.00010	-	-	-	-	-	-	-	-	-
Titanium (Ti)	0.01	-	-	-	<0.010	-	-	-	-	-	-	-	-	-
Uranium (U)	0.00001	-	-	-	<0.000010	-	-	-	-	-	-	-	-	-
Vanadium (V)	0.0005	-	-	-	<0.00050	-	-	-	-	-	-	-	-	-
Zinc (Zn)	0.001 - 0.003	-	-	-	<0.0030	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0020	<0.000010	<0.000010	<0.000010
Acenaphthylene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benz[a]anthracene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Travel Blank												
Date		17-Jan-2018	20-Feb-2018	21-Mar-2018	17-Apr-2018	24-May-2018	30-May-2018	5-Jun-2018	13-Jun-2018	20-Jun-2018	24-Jul-2018	22-Aug-2018	26-Sep-2018	2-Oct-2018
Time		-	-	-	13:49	13:14	0:00	0:00	0:00	0:00	-	-	-	0:00
ALS Sample ID		L2047188-13	L2059721-13	L2071214-14	L2082790-8	L2100747-17	L2104191-10	L2107408-10	L2112729-10	L2116657-15	L2136642-15	L2152033-17	L2172821-23	L2175314-10
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)														
Benzo[a]pyrene	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000070	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo[g,h,i]perylene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b]fluoranthene	0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo[b,j,k]fluoranthene	0.000015	-	-	-	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo[k]fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz[a,h]anthracene	0.000005 - 0.000006	<0.0000050	<0.0000050	<0.0000050	<0.0000060	<0.0000050	<0.0000050	<0.0000050	0.0000064	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000040	<0.000010	<0.000010	<0.000010
Indeno[1,2,3-c,d]pyrene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
1-Methylnaphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Phenanthrene	0.00002 - 0.00005	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	-	103	106	89.4	80.9	80.7	90.1	89.3	95.8	83.2	80.1	79.7	70.5	109
Chrysene d12	-	126	89.7	88.8	78.8	80.6	72.4	82.2	68.5	69.8	86.3	99.9	86.2	96.3
Naphthalene d8	-	126	108	94.5	91.7	91.3	94.5	105	87.7	92.1	88.5	93.0	93.9	124
Phenanthrene d10	-	127	113	109	84.8	93.4	92.7	101	103	94.2	95.5	95.1	96.8	110
Aggregate Organics														
BOD	2	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds														
Benzene	0.0005	-	<0.00050	-	-	<0.00050	-	-	-	-	-	<0.00050	-	-
Ethylbenzene	0.0005	-	<0.00050	-	-	<0.00050	-	-	-	-	-	<0.00050	-	-
Methyl t-butyl ether (MTBE)	0.0005	-	<0.00050	-	-	<0.00050	-	-	-	-	-	<0.00050	-	-
Styrene	0.0005	-	<0.00050	-	-	<0.00050	-	-	-	-	-	<0.00050	-	-
Toluene	0.00045	-	<0.00045	-	-	<0.00045	-	-	-	-	-	<0.00045	-	-
ortho-Xylene	0.0005	-	<0.00050	-	-	<0.00050	-	-	-	-	-	<0.00050	-	-
meta- & para-Xylene	0.0005	-	<0.00050	-	-	<0.00050	-	-	-	-	-	<0.00050	-	-
Xylene	0.00075	-	<0.00075	-	-	<0.00075	-	-	-	-	-	<0.00075	-	-
4-Bromofluorobenzene (SS)	-	-	93.6	-	-	95.2	-	-	-	-	-	75.7	-	-
1,4-Difluorobenzene (SS)	-	-	97.7	-	-	101	-	-	-	-	-	80.8	-	-
Hydrocarbons														
Volatile Hydrocarbons (VH6-10)	0.1	-	-	-	-	-	-	-	-	-	-	<0.10	-	-
VPH (C6-C10)	0.1	-	-	-	-	-	-	-	-	-	-	<0.10	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-	80.2	-	-
EPH10-19	0.25	-	-	-	-	-	-	-	-	-	<0.25	-	<0.25	<0.25
EPH19-32	0.25	-	-	-	-	-	-	-	-	-	<0.25	-	<0.25	<0.25
LEPH	0.25	-	-	-	-	-	-	-	-	-	<0.25	-	<0.25	<0.25
HEPH	0.25	-	-	-	-	-	-	-	-	-	<0.25	-	<0.25	<0.25
2-Bromobenzotrifluoride	-	-	-	-	-	-	-	-	-	-	90.4	-	111	94.5
Radiological														
Ra-226	0.0054 - 0.0073	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)														
Selenium +4	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
Shaded cells indicate detectable concentrations.

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site	Detection Limit Range	Travel Blank									
Date		11-Oct-2018	16-Oct-2018	23-Oct-2018	21-Nov-2018	12-Dec-2018	22-Jan-2019	20-Feb-2019	13-Mar-2019	30-Apr-2019	5-Nov-2019
Time		0:00	-	-	0:00	-	0:00	-	0:00	-	-
ALS Sample ID		L2180208-8	L2182796-10	L2186826-20	L2200625-18	L2210255-18	L2224631-18	L2235919-18	L2244461-18	L2266761-16	L2378791-14
Physical Tests											
Colour, True	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Conductivity (µS/cm)	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness (as CaCO ₃)	0.5	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	<0.50	-	<0.50
pH	0.1	5.56	5.50	5.34	6.00	5.27	5.80	5.40	5.81	5.4	5.41
Total Suspended Solids	3	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids	13 - 20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Turbidity (NTU)	0.1	<0.10	<0.10	0.1000	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acidity (as CaCO ₃)	1	2.00	2.40	2.00	2.00	1.30	2.30	2.00	1.90	1.70	2.10
Alkalinity, Total (as CaCO ₃)	1-2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.000	<1.0	<1.0
Anions											
Bromide (Br)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphate (SO ₄)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Nutrients											
Total Nitrogen	0.03	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Total Kjeldahl Nitrogen	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ammonia as N	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (as N)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus (as P)	0.002 - 0.02	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Dissolved Orthophosphate (as P)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon											
Total Organic Carbon	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Organic Carbon	0.5	-	-	-	-	-	<0.50	-	<0.50	<0.50	-
Total Inorganic Carbon	0.5	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	0.5	-	-	-	-	-	-	-	-	-	-
Cyanide											
Cyanide, Total	0.001 - 0.002	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	0.002 - 0.005	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	0.005	-	-	-	-	-	-	-	-	-	-
Total Metals											
Aluminum (Al)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Antimony (Sb)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)	0.0001 - 0.0004	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Barium (Ba)	0.00005 - 0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Beryllium (Be)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium (Cr)	0.0001 - 0.0005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.000170	<0.00010	<0.00010	0.00034
Cobalt (Co)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)	0.0005 - 0.004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)	0.03 - 0.09	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Manganese (Mn)	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)	0.000005 - 0.000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	0.00005 - 0.0005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site Date Time ALS Sample ID	Detection Limit Range	Travel Blank									
		11-Oct-2018	16-Oct-2018	23-Oct-2018	21-Nov-2018	12-Dec-2018	22-Jan-2019	20-Feb-2019	13-Mar-2019	30-Apr-2019	5-Nov-2019
		0:00	-	-	0:00	-	0:00	-	0:00	-	-
		L2180208-8	L2182796-10	L2186826-20	L2200625-18	L2210255-18	L2224631-18	L2235919-18	L2244461-18	L2266761-16	L2378791-14
Total Metals (cont'd)											
Potassium (K)	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Selenium (Se)	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Silver (Ag)	0.00001 - 0.00002	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium (Sr)	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sulphur (S)	0.5 - 2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium (Tl)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)	0.0001	<0.00010	<0.00010	0.000190	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)	0.01 - 0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium (V)	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	0.003	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Metals											
Aluminum (Al)	0.003	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	0.0001	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	0.0001	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	0.00005 - 0.0001	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	0.0001	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	0.00005	-	-	-	-	-	-	-	-	-	-
Boron (B)	0.01	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	0.000005	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	0.05	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	0.0001	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	0.0001	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	0.0005	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	0.03	-	-	-	-	-	-	-	-	-	-
Lead (Pb)	0.00005	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	0.001	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	0.005	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	0.0001 - 0.00015	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	0.000005	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.00005	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	0.0005	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)	0.3	-	-	-	-	-	-	-	-	-	-
Potassium (K)	0.05	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	0.00005	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	0.05	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	0.00001	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	2	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	0.0002	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	0.5	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	0.00001	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	0.0001	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	0.01	-	-	-	-	-	-	-	-	-	-
Uranium (U)	0.00001	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	0.0005	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	0.001 - 0.003	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Acenaphthylene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Acridine	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Anthracene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Benz[a]anthracene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-

Appendix 8-C. Water Quality Blank Results, Tenas Project, 2017 to 2019

Site		Travel Blank									
Date		11-Oct-2018	16-Oct-2018	23-Oct-2018	21-Nov-2018	12-Dec-2018	22-Jan-2019	20-Feb-2019	13-Mar-2019	30-Apr-2019	5-Nov-2019
Time	Detection Limit	0:00	-	-	0:00	-	0:00	-	0:00	-	-
ALS Sample ID	Range	L2180208-8	L2182796-10	L2186826-20	L2200625-18	L2210255-18	L2224631-18	L2235919-18	L2244461-18	L2266761-16	L2378791-14
Polycyclic Aromatic Hydrocarbons (cont'd)											
Benzo[a]pyrene	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-
Benzo[g,h,i]perylene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Benzo[b]fluoranthene	0.00005	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Benzo[b,j,k]fluoranthene	0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015	-
Benzo[k]fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Chrysene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Dibenz[a,h]anthracene	0.000005 - 0.000006	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-
Fluoranthene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Fluorene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Indeno[1,2,3-c,d]pyrene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Naphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-
1-Methylnaphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-
2-Methylnaphthalene	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-
Phenanthrene	0.00002 - 0.00005	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	-
Pyrene	0.00001 - 0.00005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-
Quinoline	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-
Acridine d9	-	74.0	87.6	82.5	92.2	94.8	87.0	86.4	93.2	74.4	-
Chrysene d12	-	86.5	113	96.8	92.5	101	104	108	98.1	80	-
Naphthalene d8	-	68.1	93.6	91.9	99.3	103	95.8	97.6	87.5	95.2	-
Phenanthrene d10	-	89.2	102	104	109	98.6	106	100	110	100.4	-
Aggregate Organics											
BOD	2	-	-	-	-	-	-	-	-	-	-
COD	20	-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	0.001	0.00210	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Volatile Organic Compounds											
Benzene	0.0005	-	-	-	<0.00050	-	-	<0.00050	-	-	-
Ethylbenzene	0.0005	-	-	-	<0.00050	-	-	<0.00050	-	-	-
Methyl t-butyl ether (MTBE)	0.0005	-	-	-	<0.00050	-	-	<0.00050	-	-	-
Styrene	0.0005	-	-	-	<0.00050	-	-	<0.00050	-	-	-
Toluene	0.00045	-	-	-	<0.00045	-	-	<0.00045	-	-	-
ortho-Xylene	0.0005	-	-	-	<0.00050	-	-	<0.00050	-	-	-
meta- & para-Xylene	0.0005	-	-	-	<0.00050	-	-	<0.00050	-	-	-
Xylene	0.00075	-	-	-	<0.00075	-	-	<0.00075	-	-	-
4-Bromofluorobenzene (SS)	-	-	-	-	89.5	-	-	87.7	-	-	-
1,4-Difluorobenzene (SS)	-	-	-	-	95.7	-	-	104	-	-	-
Hydrocarbons											
Volatile Hydrocarbons (VH6-10)	0.1	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	0.1	-	-	-	-	-	-	-	-	-	-
3,4-Dichlorotoluene (SS)	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-
EPH19-32	0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-
LEPH	0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-
HEPH	0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	-	-	-
2-Bromobenzotrifluoride	-	94.9	103	94.5	94.7	101	86.1	-	-	-	-
Radiological											
Ra-226	0.0054 - 0.0073	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)											
Selenium +4	0.1	-	-	-	-	-	-	-	-	-	-
Selenium +6	0.1	-	-	-	-	-	-	-	-	-	-
Selenocyanate	0.1	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	0.2	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
Shaded cells indicate detectable concentrations.

Appendix 8-D *Water Quality Relative Percent Difference Results,
Tenas Project, 2017 to 2019*

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS10			WQS01			WQS09			WQS08			WQS08			WQS09			WQS11		
Date	2017-05-03			4-May-2017			2017-06-20			2017-07-27			2017-08-16			2017-09-26			2017-09-27		
ALS Sample ID	L1922134-3	L1922134-4	RPD (%)	L1922134-15	L1922134-9	RPD (%)	L1947234-13	L1947234-5	RPD (%)	L1966679-12	L1966679-8	RPD (%)	L1977457-12	L1977457-7	RPD (%)	L1998999-15	L1998999-8	RPD (%)	L1998999-10	L1998999-12	RPD (%)
Physical Tests																					
Colour, True	-	-	-	-	-	-	-	-	-	8.5	8	n/a	11.4	<5.0	n/a	22.9	23	n/a	6.1	5.9	n/a
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	54.4	54.5	0.2	62.5	64.9	3.8	69	69.6	0.9	51.7	52.1	0.8
Hardness (as CaCO ₃)	40.2	39.4	2.0	57.1	57.4	0.5	27.5	28.8	4.6	24.2	25.6	5.6	29.3	31.5	7.2	30	32.1	6.8	22.8	25	9.2
pH	-	-	-	-	-	-	-	-	-	7.7	7.69	0.1	7.58	7.63	0.7	7.73	7.72	0.1	7.7	7.68	0.3
Total Suspended Solids	-	-	-	-	-	-	-	-	-	11.3	19.9	55.1	<3.0	5.2	n/a	31.1	29.5	5.3	<3.0	<3.0	n/a
Total Dissolved Solids	-	-	-	-	-	-	-	-	-	44	41	n/a	45	44	n/a	69	72	4.3	39	37	n/a
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	15	14.5	3.4	7.32	7.95	8.3	56.4	59.9	6.0	1.9	1.98	4.1
Acidity (as CaCO ₃)	-	-	-	-	-	-	-	-	-	1.9	1.9	n/a	2.5	2.3	n/a	1.8	1.8	n/a	1.7	1.7	n/a
Alkalinity, Total (as CaCO ₃)	-	-	-	-	-	-	-	-	-	22.6	23.4	3.5	28.2	27.3	3.2	29.1	28.8	1.0	22.8	23.1	1.3
Anions																					
Bromide (Br)	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a
Chloride (Cl)	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a
Fluoride (F)	0.026	0.026	n/a	0.026	0.025	n/a	0.022	0.022	n/a	<0.020	<0.020	n/a	0.021	0.02	n/a	0.034	0.033	n/a	0.025	0.03	n/a
Sulphate (SO ₄)	2.6	2.6	0.0	0.93	0.93	n/a	6.08	6.1	0.3	4.34	4.36	0.5	4.62	4.78	3.4	6.91	6.9	0.1	4.09	4.1	0.2
Nutrients																					
Nitrate (as N)	0.0321	0.0322	0.3	0.086	0.0864	0.5	0.0142	0.0143	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	0.0148	0.0153	n/a	<0.0050	<0.0050	n/a
Nitrite (as N)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Total Kjeldahl Nitrogen	0.199	0.213	n/a	0.339	0.368	8.2	0.095	0.096	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	0.093	0.086	n/a	0.084	0.064	n/a
Total Nitrogen	-	-	-	-	-	-	-	-	-	0.038	<0.030	n/a	<0.030	<0.030	n/a	0.061	0.103	n/a	0.065	0.07	n/a
Ammonia as N	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	0.0313	170.4	<0.0050	<0.0050	n/a
Total Phosphorus (as P)	0.0063	0.0063	n/a	0.058	0.0502	14.4	0.0364	0.0368	1.1	0.0325	0.0241	29.7	0.0093	0.0099	n/a	0.0281	0.0442	44.5	0.0043	0.0045	n/a
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	-	-	-	-	-	<0.0010	<0.0010	n/a	0.0019	0.002	n/a	<0.0010	<0.0010	n/a
Carbon																					
Total Organic Carbon	8.28	7.86	5.2	14.9	15.5	3.9	2.43	2.3	n/a	0.92	0.61	n/a	0.51	<0.50	n/a	1.3	1.06	n/a	1.12	1.23	n/a
Dissolved Organic Carbon	7.19	7.57	5.1	13.3	13.4	0.7	1.9	1.91	n/a	<0.50	0.63	n/a	<0.50	<0.50	n/a	0.89	0.77	n/a	0.88	0.99	n/a
Total Inorganic Carbon	8.19	8.56	4.4	12.8	12.9	0.8	5.88	5.86	0.3	5.59	5.57	0.4	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	5.23	6.23	17.5	11.8	12.3	4.1	5.66	5.7	0.7	5.87	6.12	4.2	-	-	-	-	-	-	-	-	-
Cyanide																					
Cyanide, Total	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0020	<0.0020	n/a	-	-	-	-	-	n/a	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0020	<0.0020	n/a	-	-	-	<0.0050	<0.0050	n/a	-	-	-	-	-	-
Cyanide, Free	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	-	-	-	<0.0050	<0.0050	n/a	-	-	-	-	-	-
Total Metals																					
Aluminum (Al)	0.422	0.437	3.5	1.59	2.23	33.5	1.17	1.1	6.2	0.565	0.563	0.4	0.258	0.267	3.4	2.57	2.7	4.9	0.0745	0.0814	8.9
Antimony (Sb)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.0004	0.00037	n/a	0.00088	0.00092	4.4	0.00047	0.00046	n/a	0.00021	0.00019	n/a	0.00014	0.00015	n/a	<0.00040	0.00034	n/a	<0.00020	<0.00020	n/a
Barium (Ba)	0.0331	0.0328	0.9	0.0472	0.0519	9.5	0.0401	0.0397	1.0	0.0379	0.0384	1.3	0.0397	0.039	1.8	0.0802	0.0763	5.0	0.0218	0.0225	3.2
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	0.016	0.017	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	0.000015	0.0000109	n/a	0.0000185	0.000021	n/a	0.0000295	0.0000345	15.6	0.0000247	0.0000224	n/a	0.000021	0.000022	n/a	0.0000867	0.0000802	7.8	<0.0000050	<0.0000050	n/a
Calcium (Ca)	12	11.9	0.8	17.2	17.2	0.0	9.46	9.66	2.1	8.23	8.03	2.5	9.87	9.76	1.1	10.8	11.5	6.3	7.9	7.75	1.9
Chromium (Cr)	0.00053	0.00049	7.8	0.00172	0.00226	27.1	0.00073	0.00072	1.4	0.00037	0.00029	n/a	0.00015	0.00018	n/a	0.00104	0.00105	1.0	<0.00010	0.00017	n/a
Cobalt (Co)	0.00019	0.00019	n/a	0.00092	0.00099	7.3	0.00059	0.00055	7.0	0.00028	0.00027	n/a	0.00013	0.00012	n/a	0.00107	0.00104	2.8	<0.00010	<0.00010	n/a
Copper (Cu)	0.00224	0.00212	n/a	0.00463	0.00491	5.9	0.0039	0.00382	2.1	0.00183	0.0017	n/a	0.00112	0.0011	n/a	0.00589	0.00622	5.5	0.00076	0.0008	n/a
Iron (Fe)	0.639	0.639	0.0	1.51	1.79	17.0	1.06	1.01	4.8	0.608	0.584	4.0	0.368	0.381	3.5	2.48	2.55	2.8	0.08	0.093	n/a
Lead (Pb)	0.000162	0.000155	n/a	0.000388	0.000427	9.6	0.000973	0.000942	3.2	0.000867	0.000824	5.1	0.00049	0.000478	2.5	0.0027	0.00269	0.4	<0.000050	0.000053	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	0.0011	0.0013	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	0.0011	0.0016	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	2.54	2.51	1.2	4.05	4.24	4.6	1.8	1.8	0.0	1.3	1.26	3.1	1.32	1.31	0.8	2.53	2.39	5.7	0.88	0.885	0.6
Manganese (Mn)	0.0294	0.0294	0.0	0.0584	0.0581	0.5	0.0621	0.048	25.6	0.0305	0.0292	4.4	0.0243	0.0239	1.7	0.0917	0.0932	1.6	0.00484	0.00558	14.2
Mercury (Hg)	<0.0000050	<0.0000050	n/a	0.0000088	0.0000084	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.000025	<0.000025	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000299	0.000311	3.9	0.000082	0.000088	n/a	0.000453	0.00049	7.8	0.000638	0.000985	42.8	0.00057	0.000572	0.4	0.00075	0.000716	4.6	<0.00050	<0.00050	n/a
Nickel (Ni)	0.0007	<0.00050	n/a	0.00198	0.00204	n/a	0.00071	0.00071	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.00095	0.00099	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.326	0.336	3.0	0.4	0.513	24.8	0.394	0.396	0.5	0.294	0.3	2.0	0.287	0.284	1.1	0.84	0.816	2.9	0.268	0.276	2.9
Selenium (Se)	0.000059	0.000057	n/a	<0.000050	0.000064	n/a	0.000078	0.000066	n/a	0.000067	0.000101	n/a	0.000082	0.000101	n/a	0.000095	0.000108	n/a	<0.000050	<0.000050	n/a
Silicon (Si)	4.13	4.01	2.9	6.12	7.82	24.4	3.94	3.88	1.5	2.25	2.25	0.0	2.17	2.17	0.0	6.49	6.37	1.9	1.28	1.3	1.6

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS10			WQS01			WQS09			WQS08			WQS08			WQS09			WQS11		
Date	2017-05-03			4-May-2017			2017-06-20			2017-07-27			2017-08-16			2017-09-26			2017-09-27		
ALS Sample ID	L1922134-3	L1922134-4	RPD (%)	L1922134-15	L1922134-9	RPD (%)	L1947234-13	L1947234-5	RPD (%)	L1966679-12	L1966679-8	RPD (%)	L1977457-12	L1977457-7	RPD (%)	L1998999-15	L1998999-8	RPD (%)	L1998999-10	L1998999-12	RPD (%)
Total Metals (cont'd)																					
Silver (Ag)	<0.000010	<0.000010	n/a	0.000013	0.000016	n/a	0.000015	<0.000010	n/a	<0.000010	0.000012	n/a	<0.000010	<0.000010	n/a	0.00002	0.000111	138.9	<0.000010	<0.000010	n/a
Sodium (Na)	2.1	2	n/a	2.6	2.8	n/a	<2.0	<2.0	n/a	<2.0	<2.0	n/a	<2.0	<2.0	n/a	<2.0	<2.0	n/a	<2.0	<2.0	n/a
Strontium (Sr)	0.0588	0.0585	0.5	0.0834	0.0864	3.5	0.0468	0.0471	0.6	0.0441	0.0443	0.5	0.0526	0.0506	3.9	0.0571	0.0586	2.6	0.0334	0.0323	3.3
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	1.67	1.6	n/a	2.12	2.33	n/a	1.24	1.18	n/a
Thallium (Tl)	<0.000010	<0.000010	n/a	<0.000010	0.000012	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	<0.015	0.012	n/a	0.04	0.069	53.2	0.031	0.034	n/a	0.02	0.022	n/a	<0.010	0.01	n/a	0.084	0.094	11.2	<0.010	<0.010	n/a
Uranium (U)	0.000051	0.000049	4.0	0.00013	0.000145	10.9	0.000056	0.000057	1.8	0.000057	0.000063	10.0	0.000046	0.000045	n/a	0.000102	0.000098	4.0	0.000023	0.000023	n/a
Vanadium (V)	0.00134	0.00137	n/a	0.00367	0.00488	28.3	0.00258	0.00261	1.2	0.00135	0.00145	n/a	0.00074	0.00077	n/a	0.0046	0.00474	3.0	<0.00050	<0.00050	n/a
Zinc (Zn)	<0.0030	<0.0030	n/a	0.0061	0.0063	n/a	0.0055	0.0056	n/a	0.0039	0.0038	n/a	<0.0030	0.0036	n/a	0.0119	0.0141	n/a	<0.0030	<0.0030	n/a
Dissolved Metals																					
Aluminum (Al)	0.0757	0.0759	0.3	0.144	0.14	2.8	0.0248	0.0272	9.2	0.042	0.0436	3.7	0.0303	0.0304	0.3	0.0166	0.016	3.7	0.0168	0.018	6.9
Antimony (Sb)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00021	0.0002	n/a	0.0003	0.0003	n/a	0.00017	0.00017	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.00011	0.00012	n/a
Barium (Ba)	0.0275	0.0274	0.4	0.0306	0.0308	0.7	0.0245	0.0259	5.6	0.0279	0.0288	3.2	0.0342	0.0362	5.7	0.0325	0.031	4.7	0.0211	0.0209	1.0
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	0.014	0.014	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	0.0000051	0.0000064	n/a	<0.0000050	<0.0000050	n/a	0.000009	0.0000075	n/a	<0.0000050	0.0000062	n/a	0.0000074	0.0000079	n/a	0.0000078	0.0000079	n/a	<0.0000050	<0.0000050	n/a
Calcium (Ca)	12.1	11.8	2.5	16.9	17.1	1.2	8.82	9.21	4.3	7.97	8.46	6.0	9.66	10.4	7.4	9.63	10.6	9.6	7.58	8.45	10.9
Chromium (Cr)	0.00021	0.0002	n/a	0.00035	0.00031	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	0.00014	n/a	<0.00010	<0.00010	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	0.00153	0.0015	n/a	0.00236	0.00237	n/a	0.00122	0.00135	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.00072	0.0007	n/a	0.00058	0.0006	n/a
Iron (Fe)	0.256	0.251	2.0	0.132	0.134	n/a	<0.030	<0.030	n/a	0.033	0.033	n/a	0.042	0.044	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	0.000055	0.000061	n/a	<0.000050	0.000051	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	2.39	2.38	0.4	3.59	3.58	0.3	1.34	1.4	4.4	1.04	1.09	4.7	1.26	1.36	7.6	1.46	1.35	7.8	0.939	0.946	0.7
Manganese (Mn)	0.00635	0.00572	10.4	0.00294	0.00327	10.6	0.00336	0.0055	48.3	0.00074	0.00181	83.9	0.0103	0.0108	4.7	0.00796	0.00785	1.4	0.00189	0.00191	1.1
Mercury (Hg)	<0.0000050	<0.0000050	n/a	0.0000058	0.0000055	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000276	0.000276	0.0	0.00006	0.000061	n/a	0.000431	0.000473	9.3	0.000658	0.000688	4.5	0.000601	0.000612	1.8	0.000534	0.000659	21.0	0.000305	0.00035	13.7
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.27	0.27	0.0	0.224	0.219	n/a	0.205	0.212	n/a	0.214	0.226	n/a	0.246	0.269	8.9	0.351	0.321	8.9	0.297	0.285	4.1
Selenium (Se)	0.000053	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	0.000059	n/a	<0.000050	<0.000050	n/a	0.000092	0.000084	n/a	<0.000050	0.000078	n/a	<0.000050	<0.000050	n/a
Silicon (Si)	3.54	3.49	1.4	3.97	4.02	1.3	1.9	2.09	9.5	1.44	1.51	4.7	1.64	1.75	6.5	1.88	1.81	3.8	1.21	1.24	2.4
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	2	<2.0	n/a	2.5	2.5	n/a	&lt														

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS05			WQS02			WQS02			WQS05			WQS06			WQS01			WQS02		
Date	18-Oct-2017			18-Oct-2017			28-Nov-2017			21-Nov-2017			2017-12-12			14-Dec-2017			17-Jan-2018		
ALS Sample ID	L2010562-4	L2010562-9	RPD (%)	L2010562-3	L2010562-5	RPD (%)	L2029323-2	L2029323-4	RPD (%)	L2027227-2	L2027227-8	RPD (%)	L2036162-13	L2036162-6	RPD (%)	L2036162-1	L2036162-14	RPD (%)	L2047188-1	L2047188-11	RPD (%)
Physical Tests																					
Colour, True	20.9	13.9	n/a	14.3	25.3	55.6	21	20.7	n/a	23	23.2	n/a	14.6	14.9	n/a	11.7	11.6	n/a	7.3	8.2	n/a
Conductivity (µS/cm)	77.5	165	72.2	162	144	11.8	143	142	0.7	147	149	1.4	168	167	0.6	156	157	0.6	176	177	0.6
Hardness (as CaCO ₃)	36.2	75.8	70.7	78.1	69.5	11.7	68.9	72.5	5.1	74.1	74.4	0.4	95.5	75.8	23.0	76	89.9	16.8	86.6	86.2	0.5
pH	7.77	8.04	3.4	7.85	8.08	2.9	8.16	8.14	0.2	7.93	7.96	0.4	7.95	7.95	0.0	8.12	8.12	0.0	8.13	8.18	0.6
Total Suspended Solids	3.5	6.9	n/a	3.1	4.3	n/a	<3.0	3.7	n/a	<3.0	4.7	n/a	3.7	3.3	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a
Total Dissolved Solids	55	108	65.0	105	95	10.0	88	98	10.8	106	107	0.9	109	111	1.8	99	97	2.0	102	121	17.0
Turbidity (NTU)	3.5	5.83	49.9	5.67	6.67	16.2	2.56	3.36	27.0	4.59	4.98	8.2	6.75	6.74	0.1	1.58	1.75	10.2	0.94	1	6.2
Acidity (as CaCO ₃)	1.4	1.8	n/a	1.5	1.7	n/a	<1.0	<1.0	n/a	2.2	2.1	n/a	2	2.1	n/a	1.6	1.6	n/a	1	<1.0	n/a
Alkalinity, Total (as CaCO ₃)	37.2	62.8	51.2	61.4	78.2	24.1	79.8	79.6	0.3	60.8	61.9	1.8	60.4	60.8	0.7	83.3	84.6	1.5	94.6	95.3	0.7
Anions																					
Bromide (Br)	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a
Chloride (Cl)	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a
Fluoride (F)	0.027	0.032	n/a	0.032	0.03	n/a	0.029	0.028	n/a	0.039	0.039	n/a	0.039	0.038	n/a	0.034	0.033	n/a	0.036	0.036	n/a
Sulphate (SO ₄)	4.78	23.5	132.4	23.3	2.69	158.6	1.8	1.78	1.1	17.3	17.3	0.0	25.5	25.4	0.4	2	2.02	1.0	2.75	2.74	0.4
Nutrients																					
Nitrate (as N)	0.0082	0.0266	105.7	0.0266	<0.0050	165.6	0.0174	0.017	n/a	0.0309	0.0298	3.6	0.0414	0.0412	0.5	0.0228	0.0225	n/a	0.0417	0.0415	0.5
Nitrite (as N)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Total Kjeldahl Nitrogen	0.064	0.065	n/a	0.062	0.124	n/a	0.101	0.095	n/a	0.134	0.123	n/a	0.142	0.116	n/a	0.063	0.077	n/a	0.063	0.077	n/a
Total Nitrogen	0.099	0.098	n/a	0.101	0.129	n/a	0.119	0.12	n/a	0.157	0.159	1.3	0.13	0.139	n/a	0.099	0.086	n/a	0.08	0.076	n/a
Ammonia as N	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a
Total Phosphorus (as P)	0.0056	0.0051	n/a	0.0052	0.0052	n/a	0.0035	0.0039	n/a	0.0045	0.004	n/a	0.0073	0.0063	n/a	0.0048	0.0042	n/a	0.0028	0.0026	n/a
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	0.001	0.0013	n/a	0.0013	<0.0010	n/a
Carbon																					
Total Organic Carbon	3.86	3.74	3.2	3.77	6.05	46.4	5.78	5.51	4.8	5.83	6.13	5.0	4.66	4.55	2.4	3.46	4.49	25.9	2.52	2.55	1.2
Dissolved Organic Carbon	3.55	3.19	10.7	3.37	5.51	48.2	5.48	5.29	3.5	5.82	5.89	1.2	4.3	4.53	5.2	3.37	3.15	6.7	2.63	2.47	6.3
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																					
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																					
Aluminum (Al)	0.14	0.234	50.3	0.231	0.27	15.6	0.125	0.184	38.2	0.207	0.273	27.5	0.373	0.345	7.8	0.0959	0.102	6.2	0.0374	0.0616	48.9
Antimony (Sb)	<0.00010	0.00011	n/a	0.00014	0.00016	n/a	0.0001	<0.00010	n/a	0.0001	<0.00010	n/a	<0.00010	0.00013	n/a	0.00011	0.00012	n/a	0.00013	0.00011	n/a
Arsenic (As)	0.00023	0.00034	n/a	0.00034	0.00053	43.7	0.00046	0.00048	n/a	0.00034	0.00034	n/a	0.00035	0.00032	n/a	0.00051	0.00052	1.9	0.00037	0.00048	n/a
Barium (Ba)	0.0358	0.0541	40.7	0.0535	0.0332	46.8	0.0307	0.0305	0.7	0.0474	0.0491	3.5	0.0727	0.0681	6.5	0.037	0.039	5.3	0.035	0.0433	21.2
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	<0.010	0.013	n/a	0.015	0.014	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	0.016	0.017	n/a	0.017	0.017	n/a
Cadmium (Cd)	0.0000121	0.0000083	n/a	0.000007	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	0.0000061	0.0000063	n/a	0.000008	0.0000104	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Calcium (Ca)	11.9	23.8	66.7	23.8	21.6	9.7	22.9	21.9	4.5	23.1	23.5	1.7	28.7	27.1	5.7	25.4	27.7	8.7	26.4	27.5	4.1
Chromium (Cr)	0.00019	0.00038	n/a	0.00039	0.00058	39.2	0.00045	0.00051	12.5	0.00039	0.00043	n/a	0.00047	0.00044	n/a	0.00043	0.00042	n/a	0.00041	0.00048	n/a
Cobalt (Co)	<0.00010	0.00016	n/a	0.00016	0.00015	n/a	<0.00010	<0.00010	n/a	0.00013	0.00013	n/a	0.00024	0.00022	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	0.00135	0.0018	n/a	0.00181	0.00211	n/a	0.00201	0.00203	n/a	0.00276	0.00271	1.8	0.00287	0.00263	8.7	0.00137	0.0015	n/a	0.0011	0.00142	n/a
Iron (Fe)	0.317	0.269	16.4	0.266	0.254	4.6	0.096	0.136	n/a	0.255	0.262	2.7	0.426	0.404	5.3	0.079	0.073	n/a	0.039	0.042	n/a
Lead (Pb)	0.000144	0.000071	n/a	0.000064	0.000059	n/a	<0.000050	<0.000050	n/a	0.000072	0.000071	n/a	0.000154	0.000117	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	0.0011	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	1.81	4.18	79.1	4.26	3.87	9.6	4.02	3.91	2.8	4.9	4.92	0.4	5.93	5.46	8.3	4.56	4.87	6.6	5.4	6.6	20.0
Manganese (Mn)	0.0203	0.0117	53.8	0.0112	0.0077	37.0	0.00423	0.00674	45.8	0.0077	0.00797	3.4	0.0128	0.0121	5.6	0.00289	0.00276	4.6	0.00348	0.00414	17.3
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000542	0.000304	56.3	0.000305	0.000107	96.1	0.000099	0.000102	n/a	0.000332	0.000335	0.9	0.000595	0.000542	9.3	0.000118	0.000115	n/a	0.000166	0.000144	n/a
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.00056	0.00055	n/a	0.00082	0.00076	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.36	0.371	3.0	0.41	0.248	49.2	0.183	0.182	n/a	0.366	0.373	1.9	0.539	0.494	8.7	0.176	0.184	n/a	0.179	0.25	n/a
Selenium (Se)	0.000082	0.000068	n/a	0.000058	<0.000050	n/a	<0.000050	0.000073	n/a	0.000093	0.00009	n/a	0.000116	0.000125	n/a	0.000066	0.000086	n/a	0.000064	0.000058	n/a
Silicon (Si)	3.1	3.41	9.5	3.47	3.93	12.4	3.72	3.76	1.1	3.33	3.58	7.2	4.02	3.83	4.8	4.15	4.52	8.5	3.67	3.69	0.5

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS05			WQS02			WQS02			WQS05			WQS06			WQS01			WQS02		
Date	18-Oct-2017			18-Oct-2017			28-Nov-2017			21-Nov-2017			2017-12-12			14-Dec-2017			17-Jan-2018		
ALS Sample ID	L2010562-4	L2010562-9	RPD (%)	L2010562-3	L2010562-5	RPD (%)	L2029323-2	L2029323-4	RPD (%)	L2027227-2	L2027227-8	RPD (%)	L2036162-13	L2036162-6	RPD (%)	L2036162-1	L2036162-14	RPD (%)	L2047188-1	L2047188-11	RPD (%)
Total Metals (cont'd)																					
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	<2.0	2.9	n/a	3	3.4	n/a	3	2.9	n/a	2.8	2.8	n/a	3.3	3.2	n/a	3.6	3.9	n/a	4.2	5.1	n/a
Strontium (Sr)	0.0607	0.0947	43.8	0.0947	0.103	8.4	0.0986	0.0963	2.4	0.0843	0.0839	0.5	0.104	0.0984	5.5	0.122	0.131	7.1	0.127	0.129	1.6
Sulphur (S)	1.72	8.16	130.4	8.48	1.06	155.6	0.57	0.53	n/a	5.7	5.95	4.3	10.3	10.2	1.0	0.76	0.88	n/a	1.02	0.95	n/a
Thallium (Tl)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	0.01	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Uranium (U)	0.000054	0.000074	31.3	0.000078	0.000115	38.3	0.000114	0.000113	0.9	0.000073	0.000072	1.4	0.000081	0.000084	3.6	0.000142	0.000155	8.8	0.000176	0.000177	0.6
Vanadium (V)	0.00074	0.00086	n/a	0.00086	0.00133	n/a	0.00093	0.00102	n/a	0.00082	0.00087	n/a	0.00097	0.00087	n/a	0.00099	0.00107	n/a	0.00075	0.00092	n/a
Zinc (Zn)	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	0.0033	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a
Dissolved Metals																					
Aluminum (Al)	0.0234	0.0127	59.3	0.013	0.025	63.2	0.0284	0.0291	2.4	0.0284	0.0276	2.9	0.0147	0.0147	n/a	0.0189	0.0137	31.9	0.0067	0.0073	n/a
Antimony (Sb)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.0001	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	0.00011	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00016	0.0002	n/a	0.00021	0.00036	n/a	0.00038	0.00039	n/a	0.00025	0.00023	n/a	0.00017	0.00016	n/a	0.00042	0.00043	n/a	0.00035	0.00033	n/a
Barium (Ba)	0.0341	0.0501	38.0	0.0513	0.0309	49.6	0.0309	0.0328	6.0	0.0465	0.0471	1.3	0.0649	0.0603	7.3	0.0351	0.0366	4.2	0.0335	0.0353	5.2
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	<0.010	0.013	n/a	0.012	0.012	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	0.013	0.015	n/a	0.016	0.015	n/a
Cadmium (Cd)	0.0000066	0.000006	n/a	0.000006	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	0.0000058	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Calcium (Ca)	11.6	23.5	67.8	24.5	21.7	12.1	21	22	4.7	22.3	22.3	0.0	29.2	22.5	25.9	23.2	28.1	19.1	26	25.7	1.2
Chromium (Cr)	<0.00010	0.00012	n/a	0.00021	0.00029	n/a	0.00029	0.00023	n/a	0.00018	0.00015	n/a	0.00011	<0.00010	n/a	0.00025	0.00034	n/a	0.00024	0.00027	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	0.00096	0.00128	n/a	0.00124	0.00146	n/a	0.00154	0.0016	n/a	0.00232	0.00229	n/a	0.00199	0.00199	n/a	0.00121	0.00112	n/a	0.00087	0.00086	n/a
Iron (Fe)	0.112	<0.030	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a	0.037	0.037	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	1.75	4.18	82.0	4.1	3.73	9.5	4.01	4.29	6.7	4.49	4.52	0.7	5.5	4.78	14.0	4.42	4.83	8.9	5.26	5.36	1.9
Manganese (Mn)	0.00958	0.00366	89.4	0.00376	0.00119	103.8	0.0007	0.00068	2.9	0.00237	0.00213	10.7	0.00219	0.00219	0.0	<0.00015	0.00019	n/a	0.00069	0.00108	44.1
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	0.0000063	0.0000069	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000517	0.000288	56.9	0.000288	0.000093	102.4	0.000103	0.000101	n/a	0.000369	0.000393	6.3	0.000471	0.000479	1.7	0.000092	0.000092	n/a	0.000135	0.000137	n/a
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	0.00061	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.336	0.322	4.3	0.357	0.201	55.9	0.173	0.185	n/a	0.373	0.362	3.0	0.445	0.43	3.4	0.174	0.173	n/a	0.173	0.174	n/a
Selenium (Se)	0.00007	<0.000050	n/a	0.000059	<0.000050	n/a	0.000099	0.000068	n/a	0.000093	0.000066	n/a	0.000076	0.000102	n/a	0.00006	0.000057	n/a	0.000076	0.000057	n/a
Silicon (Si)	2.92	2.99	2.4	2.95	3.53	17.9	3.51	3.63	3.4	3.03	3.08	1.6	2.68	2.66	0.7	3.33	3.66	9.4	3.5	3.55	1.4
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	<2.0	2.9	n/a	2.9	3.3	n/a	3.3	3.5	n/a	2.9	2.8	n/a	3.2	3	n/a	3.7	3.8	n/a	4.2</		

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS05			WQS02			WQS02			WQS05			WQS06			WQS01			WQS02		
Date	18-Oct-2017			18-Oct-2017			28-Nov-2017			21-Nov-2017			2017-12-12			14-Dec-2017			17-Jan-2018		
ALS Sample ID	L2010562-4	L2010562-9	RPD (%)	L2010562-3	L2010562-5	RPD (%)	L2029323-2	L2029323-4	RPD (%)	L2027227-2	L2027227-8	RPD (%)	L2036162-13	L2036162-6	RPD (%)	L2036162-1	L2036162-14	RPD (%)	L2047188-1	L2047188-11	RPD (%)
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)																					
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[b,j,k]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[g,h,i]perylene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[k]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Chrysene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Fluorene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Naphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
1-Methylnaphthalene	-	-	-	-	-	-	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
2-Methylnaphthalene	-	-	-	-	-	-	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Phenanthrene	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a
Pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Quinoline	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Volatile Organic Compounds																					
Benzene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	<0.00045	<0.00045	n/a	<0.00045	<0.00045	n/a	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	<0.00075	<0.00075	n/a	<0.00075	<0.00075	n/a	-	-	-	-	-	-	-	-	-
Hydrocabrons																					
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological																					
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)																					
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
"- " = data not available and therefore RPD is not calculated.
n/a = not applicable when both values are less than five times the detection limit.
Red and italicized values exceed the 20% relative percent difference and are more than five times the detection limit.
Red and bold values exceed the 50% relative percent difference and are more than five times the detection limit.

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS05			WQS01			WQS04B			WQS08			WQS10			WQS02			WQS05		
Date	18-Jan-2018			19-Feb-2018			20-Feb-2018			2018-03-21			2018-03-20			18-Apr-2018			2018-04-17		
ALS Sample ID	L2047188-12	L2047188-7	RPD (%)	L2059721-2	L2059721-6	RPD (%)	L2059721-11	L2059721-8	RPD (%)	L2071214-12	L2071214-9	RPD (%)	L2071214-5	L2071214-8	RPD (%)	L2082789-2	L2082789-4	RPD (%)	L2082790-10	L2082790-3	RPD (%)
Physical Tests																					
Colour, True	8.5	7	n/a	<5.0	<5.0	n/a	6.2	5.8	n/a	9.2	9.4	n/a	8.1	6.7	n/a	21.1	21.2	n/a	22.8	22.7	n/a
Conductivity (µS/cm)	194	195	0.5	175	175	0.0	204	208	1.9	120	128	6.5	132	131	0.8	182	181	0.6	241	201	18.1
Hardness (as CaCO ₃)	92.5	91.6	1.0	88.2	89	0.9	106	102	3.8	67.5	65.9	2.4	72.3	72.1	0.3	83.8	82	2.2	110	113	2.7
pH	8.04	8.05	0.1	8.29	8.29	0.0	8.19	8.39	2.4	8.03	8.03	0.0	8.07	8.04	0.4	8.02	8.03	0.1	7.99	7.98	0.1
Total Suspended Solids	4.7	3.5	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	3.5	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	8.6	7.8	n/a
Total Dissolved Solids	122	119	2.5	108	107	0.9	129	130	0.8	80	84	4.9	84	83	1.2	116	120	3.4	156	163	4.4
Turbidity (NTU)	2.58	2.61	1.2	0.91	0.86	5.6	0.9	0.91	1.1	4.86	6.11	22.8	1.77	1.76	0.6	1.67	1.5	10.7	9.35	10.5	11.6
Acidity (as CaCO ₃)	<1.0	1.1	n/a	<1.0	<1.0	n/a	<1.0	<1.0	n/a	1.3	1.3	n/a	1.5	<1.0	n/a	<1.0	<1.0	n/a	<1.0	<1.0	n/a
Alkalinity, Total (as CaCO ₃)	76.1	76.4	0.4	94.7	94.4	0.3	111	112	0.9	58.1	57.6	0.9	62.5	61.8	1.1	96.5	96.6	0.1	91.3	92	0.8
Anions																					
Bromide (Br)	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a
Chloride (Cl)	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a
Fluoride (F)	0.037	0.037	n/a	0.036	0.034	n/a	0.041	0.039	n/a	0.037	0.035	n/a	0.035	0.036	n/a	0.036	0.036	n/a	0.039	0.039	n/a
Sulphate (SO ₄)	23.3	23.4	0.4	2.6	2.6	0.0	5.92	5.72	3.4	5.64	5.63	0.2	6.9	6.9	0.0	2.73	2.71	0.7	31.2	31.3	0.3
Nutrients																					
Nitrate (as N)	0.056	0.0561	0.2	0.0551	0.0546	0.9	0.039	0.0386	1.0	0.0527	0.0524	0.6	0.0506	0.0491	3.0	0.0591	0.0604	2.2	0.0685	0.0685	0.0
Nitrite (as N)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Total Kjeldahl Nitrogen	0.08	0.061	n/a	<0.050	<0.050	n/a	<0.050	0.054	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	0.125	0.15	n/a	0.12	0.163	n/a
Total Nitrogen	0.1	0.101	n/a	0.09	0.123	n/a	0.095	0.108	n/a	0.091	0.091	n/a	0.086	0.084	n/a	0.241	0.192	22.6	0.211	0.209	1.0
Ammonia as N	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a
Total Phosphorus (as P)	0.0048	0.0045	n/a	0.0036	0.0025	n/a	0.003	0.0028	n/a	0.0074	0.0088	n/a	0.0075	0.0054	n/a	0.0043	0.0037	n/a	0.0133	0.012	10.3
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	n/a	0.0015	0.0017	n/a	0.001	0.0012	n/a	0.001	0.0013	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Carbon																					
Total Organic Carbon	2.82	2.78	1.4	1.82	1.78	n/a	2.5	3.07	20.5	1.65	1.45	n/a	1.34	1.38	n/a	6.39	6.31	1.3	6.37	6.43	0.9
Dissolved Organic Carbon	2.58	2.75	6.4	1.93	1.76	n/a	2.62	2.6	0.8	1.61	1.62	n/a	1.25	1.58	n/a	6.28	6.4	1.9	6.24	6.39	2.4
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																					
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																					
Aluminum (Al)	0.139	0.131	5.9	0.0469	0.0313	39.9	0.0364	0.0345	5.4	0.116	0.0935	21.5	0.0556	0.0557	0.2	0.0818	0.0752	8.4	0.721	0.449	46.5
Antimony (Sb)	<0.00010	0.00012	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00023	0.00023	n/a	0.00044	0.00036	n/a	0.00032	0.00029	n/a	0.00025	0.00024	n/a	0.00018	0.00017	n/a	0.00041	0.00041	n/a	0.00043	0.00043	n/a
Barium (Ba)	0.0568	0.0567	0.2	0.0348	0.0332	4.7	0.0377	0.0368	2.4	0.0435	0.0412	5.4	0.0417	0.0419	0.5	0.0374	0.0361	3.5	0.0637	0.0703	9.9
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	0.019	0.019	n/a	0.016	0.016	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	0.021	0.021	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	0.0000061	0.0000057	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	0.0000069	0.0000062	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	0.0000077	0.0000106	n/a
Calcium (Ca)	28.7	28.1	2.1	26.3	26.5	0.8	30.7	29.3	4.7	18.8	19.6	4.2	20.2	20.7	2.4	25.9	25.8	0.4	28.8	32	10.5
Chromium (Cr)	0.00032	0.00034	n/a	0.00033	0.00034	n/a	0.00026	0.00069	90.5	0.00018	0.00015	n/a	0.00015	0.00013	n/a	0.00039	0.00042	n/a	0.0007	0.00089	23.9
Cobalt (Co)	0.00011	0.00011	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.00051	0.00054	5.7
Copper (Cu)	0.00152	0.00159	n/a	0.00082	0.00076	n/a	0.00113	0.00111	n/a	0.00079	0.00074	n/a	0.00066	0.00063	n/a	0.00199	0.00196	n/a	0.003	0.00306	2.0
Iron (Fe)	0.158	0.159	0.6	0.033	<0.030	n/a	0.047	0.045	n/a	0.385	0.365	5.3	0.223	0.227	1.8	0.076	0.069	n/a	0.629	0.598	5.1
Lead (Pb)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	0.000077	0.000076	n/a	<0.000050	0.000055	n/a	<0.000050	<0.000050	n/a	0.000137	0.000125	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	0.0011	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	0.0015	0.0011	n/a
Magnesium (Mg)	5.79	5.54	4.4	4.71	4.62	1.9	6.35	5.91	7.2	3.25	3.02	7.3	3.46	3.5	1.1	5.35	5.42	1.3	6.96	7.67	9.7
Manganese (Mn)	0.00724	0.00694	4.2	0.00174	0.00086	67.7	0.00459	0.00463	0.9	0.0252	0.0238	5.7	0.0102	0.00999	2.1	0.00499	0.00493	1.2	0.0208	0.0217	4.2
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000395	0.000415	4.9	0.00014	0.000127	n/a	0.00018	0.000194	n/a	0.000489	0.000451	8.1	0.000484	0.000526	8.3	0.000137	0.000132	n/a	0.000374	0.000393	5.0
Nickel (Ni)	0.00054	0.00061	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.0011	0.00121	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.381	0.377	1.1	0.176	0.163	n/a	0.24	0.228	n/a	0.309	0.295	4.6	0.303	0.303	0.0	0.216	0.217	n/a	0.482	0.504	4.5
Selenium (Se)	0.000064	0.000076	n/a	<0.000050	0.000053	n/a	<0.000050	<0.000050	n/a	0.000076	0.000103	n/a	0.000084	0.000061	n/a	0.000061	0.000067	n/a	0.000087	0.000125	n/a
Silicon (Si)	3.1	3.13	1.0	3.64	3.58	1.7	3.62	3.51	3.1	3.96	3.81	3.9	3.62	3.66	1.1	3.69	3.71	0.5	4.12	3.59	13.7

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS05			WQS01			WQS04B			WQS08			WQS10			WQS02			WQS05		
Date	18-Jan-2018			19-Feb-2018			20-Feb-2018			2018-03-21			2018-03-20			18-Apr-2018			2018-04-17		
ALS Sample ID	L2047188-12	L2047188-7	RPD (%)	L2059721-2	L2059721-6	RPD (%)	L2059721-11	L2059721-8	RPD (%)	L2071214-12	L2071214-9	RPD (%)	L2071214-5	L2071214-8	RPD (%)	L2082789-2	L2082789-4	RPD (%)	L2082790-10	L2082790-3	RPD (%)
Total Metals (<i>cont'd</i>)																					
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	3.7	3.7	n/a	4.4	4.2	n/a	4.6	4.5	n/a	2.9	2.8	n/a	3	2.7	n/a	4.2	4.4	n/a	5	5.3	n/a
Strontium (Sr)	0.116	0.111	4.4	0.126	0.124	1.6	0.136	0.129	5.3	0.0817	0.0793	3.0	0.0833	0.0883	5.8	0.113	0.112	0.9	0.135	0.128	5.3
Sulphur (S)	7.61	7.78	2.2	1.02	0.95	n/a	1.95	1.88	n/a	1.9	1.8	n/a	2.28	2.4	n/a	0.93	0.86	n/a	10.8	10.7	0.9
Thallium (Tl)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Uranium (U)	0.000114	0.000114	0.0	0.000232	0.000227	2.2	0.000226	0.000229	1.3	0.000086	0.000081	6.0	0.00009	0.000093	3.3	0.000193	0.000197	2.1	0.000171	0.000163	4.8
Vanadium (V)	0.00051	<0.00050	n/a	0.00081	0.00075	n/a	<0.00050	0.00052	n/a	0.00063	0.00055	n/a	<0.00050	<0.00050	n/a	0.00096	0.00094	n/a	0.0016	0.00124	n/a
Zinc (Zn)	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a
Dissolved Metals																					
Aluminum (Al)	0.0065	0.0066	n/a	0.0049	0.0046	n/a	0.0077	0.007	n/a	0.0079	0.0076	n/a	0.0056	0.0049	n/a	0.0308	0.0294	4.7	0.0587	0.0585	0.3
Antimony (Sb)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00016	0.00016	n/a	0.00042	0.00037	n/a	0.00029	0.00031	n/a	0.0002	0.00023	n/a	0.00017	0.00017	n/a	0.00033	0.00033	n/a	0.00022	0.00024	n/a
Barium (Ba)	0.0556	0.0565	1.6	0.0342	0.0355	3.7	0.0396	0.0394	0.5	0.0452	0.0453	0.2	0.0478	0.0448	6.5	0.0323	0.0312	3.5	0.0653	0.0701	7.1
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	0.019	0.019	n/a	0.015	0.015	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	0.018	0.018	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	0.0000061	n/a
Calcium (Ca)	27.7	27.2	1.8	27.3	27.6	1.1	32	30.5	4.8	20.7	20.3	2.0	22.4	22.1	1.3	25.5	25.1	1.6	31.2	32.4	3.8
Chromium (Cr)	0.00011	<0.00010	n/a	0.00017	0.00024	n/a	0.00017	0.00018	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.00033	0.00032	n/a	0.00014	0.00011	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.00014	0.00011	n/a
Copper (Cu)	0.00107	0.00108	n/a	0.00062	0.00063	n/a	0.00092	0.00091	n/a	0.00052	0.00055	n/a	0.0005	<0.00050	n/a	0.00161	0.00161	n/a	0.00216	0.00218	n/a
Iron (Fe)	<0.030	<0.030	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a	0.186	0.188	1.1	0.103	0.102	n/a	0.031	0.03	n/a	0.096	0.092	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	5.69	5.75	1.0	4.83	4.88	1.0	6.29	6.3	0.2	3.86	3.7	4.2	3.99	4.11	3.0	4.85	4.72	2.7	7.68	7.79	1.4
Manganese (Mn)	0.00107	0.00083	25.3	0.00015	0.00017	n/a	0.00324	0.00335	3.3	0.0111	0.0114	2.7	0.00437	0.00435	0.5	0.00121	0.00151	22.1	0.00334	0.00202	49.3
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000385	0.000382	0.8	0.000138	0.000135	n/a	0.000183	0.000186	n/a	0.000539	0.000532	1.3	0.000505	0.000527	4.3	0.000128	0.000141	n/a	0.000378	0.000413	8.8
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.00061	0.00059	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.367	0.375	2.2	0.174	0.18	n/a	0.262	0.262	0.0	0.331	0.329	0.6	0.335	0.336	0.3	0.172	0.166	n/a	0.449	0.471	4.8
Selenium (Se)	0.000076	0.000065	n/a	0.000069	0.000051	n/a	<0.000050	<0.000050	n/a	0.000089	0.000087	n/a	0.00007	0.000094	n/a	<0.000050	<0.000050	n/a	0.000107	0.00007	n/a
Silicon (Si)	2.95	2.95	0.0	3.35	3.31	1.2	3.28	3.41	3.9	3.71	3.63	2.2	3.42	3.54	3.4	3.47	3.41	1.7	3.05	2.97	2.7
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	3.8	3.9	n/a	4.2	4.3	n/a	4.8	4.7	n/a	2.8	2.8	n/a	3	2.9	n/a	4	4	n/a	4.8	5	

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS05			WQS01			WQS04B			WQS08			WQS10			WQS02			WQS05		
Date	18-Jan-2018			19-Feb-2018			20-Feb-2018			2018-03-21			2018-03-20			18-Apr-2018			2018-04-17		
ALS Sample ID	L2047188-12	L2047188-7	RPD (%)	L2059721-2	L2059721-6	RPD (%)	L2059721-11	L2059721-8	RPD (%)	L2071214-12	L2071214-9	RPD (%)	L2071214-5	L2071214-8	RPD (%)	L2082789-2	L2082789-4	RPD (%)	L2082790-10	L2082790-3	RPD (%)
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)																					
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[b,j,k]fluoranthene	-	-	-	-	-	n/a	-	-	n/a	-	-	-	-	-	-	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a
Benzo[g,h,i]perylene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[k]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Chrysene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Fluorene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Naphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
1-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
2-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Phenanthrene	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a
Pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Quinoline	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Volatile Organic Compounds																					
Benzene	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	<0.00045	<0.00045	n/a	<0.00045	<0.00045	n/a	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	<0.00075	<0.00075	n/a	<0.00075	<0.00075	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocabrons																					
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological																					
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)																					
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
"- " = data not available and therefore RPD is not calculated.
n/a = not applicable when both values are less than five times the detection limit.
Red and italicized values exceed the 20% relative percent difference and are more than five times the detection limit.
Red and bold values exceed the 50% relative percent difference and are more than five times the detection limit.

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS04B			WQS05			WQS01			WQS09			WQS09			WQS04B			WQS06-US		
Date	23-May-2018			2018-05-30			24-May-2018			2018-06-05			2018-06-13			19-Jun-2018			2018-06-20		
ALS Sample ID	L2100747-1	L2100747-4	RPD (%)	L2104191-3	L2104191-8	RPD (%)	L2100747-11	L2100747-12	RPD (%)	L2107408-5	L2107408-8	RPD (%)	L2112729-5	L2112729-8	RPD (%)	L2116657-11	L2116657-17	RPD (%)	L2116657-18	L2116657-2	RPD (%)
Physical Tests																					
Colour, True	39.4	36.2	8.5	23.6	22.8	n/a	30.1	30.3	0.7	17.4	17.7	n/a	14.1	13	n/a	12.1	12.8	n/a	5.3	5.3	n/a
Conductivity (µS/cm)	87.5	84.7	3.3	117	112	4.4	78.8	77.4	1.8	72.8	71.3	2.1	72.7	72.4	0.4	93.6	95	1.5	99.7	101	1.3
Hardness (as CaCO ₃)	44	42.7	3.0	53.5	52.6	1.7	39.7	40.6	2.2	33.8	33.4	1.2	33.7	33.3	1.2	51.4	51.9	1.0	48.5	48.3	0.4
pH	7.92	7.93	0.1	8.06	8.02	0.5	7.92	7.87	0.6	7.81	7.82	0.1	7.88	7.88	0.0	7.96	7.97	0.1	7.67	7.65	0.3
Total Suspended Solids	47.7	51.1	6.9	13.1	14.5	n/a	43.7	39.3	10.6	8.9	9.5	n/a	5.5	7.5	n/a	10.8	10.6	n/a	7.8	9.8	n/a
Total Dissolved Solids	74	71	4.1	84	85	1.2	65	61	n/a	54	54	n/a	50	57	n/a	71	66	7.3	69	72	4.3
Turbidity (NTU)	56.3	55.4	1.6	13.9	13.7	1.4	43	41.1	4.5	5.95	6.85	14.1	4.76	5.33	11.3	15.4	15	2.6	7.09	6.55	7.9
Acidity (as CaCO ₃)	1.4	1.4	n/a	1.2	1.5	n/a	1.4	1.5	n/a	1.6	1.7	n/a	1.6	1.6	n/a	2.7	2.4	n/a	2.7	2.2	n/a
Alkalinity, Total (as CaCO ₃)	46.2	46.5	0.6	53.4	53.6	0.4	41.9	41.9	0.0	34.1	34.6	1.5	33.4	33.3	0.3	51.2	50.8	0.8	25.9	25	3.5
Anions																					
Bromide (Br)	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a
Chloride (Cl)	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a
Fluoride (F)	0.028	0.028	n/a	0.033	0.032	n/a	0.025	0.023	n/a	0.027	0.027	n/a	0.026	0.027	n/a	0.026	0.026	n/a	0.03	0.029	n/a
Sulphate (SO ₄)	1.02	1.02	n/a	9.21	9.08	1.4	0.95	0.96	n/a	4.15	4.15	0.0	4.22	4.21	0.2	1.79	1.79	0.0	22.6	22.3	1.3
Nutrients																					
Nitrate (as N)	<0.0050	<0.0050	n/a	0.016	0.0138	n/a	0.007	0.008	n/a	0.0111	0.0118	n/a	0.0056	0.0077	n/a	<0.0050	<0.0050	n/a	0.0389	0.041	5.3
Nitrite (as N)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	0.0015	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Total Kjeldahl Nitrogen	0.166	0.188	n/a	0.126	0.135	n/a	0.136	0.143	n/a	0.108	0.096	n/a	0.053	0.064	n/a	0.074	0.072	n/a	0.052	<0.050	n/a
Total Nitrogen	0.18	0.184	2.2	0.136	0.132	n/a	0.153	0.157	2.6	0.097	0.095	n/a	0.059	0.071	n/a	0.063	0.06	n/a	0.068	0.061	n/a
Ammonia as N	<0.0050	0.0087	n/a	<0.0050	0.0073	n/a	<0.0050	0.0094	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a
Total Phosphorus (as P)	0.0664	0.0673	1.3	0.0184	0.0185	0.5	0.0403	0.0389	3.5	0.0089	0.0108	19.3	0.0092	0.0087	n/a	0.0143	0.0139	2.8	0.0108	0.0082	27.4
Dissolved Orthophosphate (as P)	0.0021	0.0017	n/a	0.0011	0.0014	n/a	0.0025	0.0022	n/a	<0.0010	<0.0010	n/a	0.0013	0.0019	n/a	<0.0010	0.0014	n/a	<0.0010	<0.0010	n/a
Carbon																					
Total Organic Carbon	7.32	7.33	0.1	5.7	5.56	2.5	6.29	5.92	6.1	3.9	3.65	6.6	2.69	2.66	1.1	2.6	2.53	2.7	1.32	1.91	n/a
Dissolved Organic Carbon	6.54	6.97	6.4	5.24	5.27	0.6	5.23	5.13	1.9	3.68	3.45	6.5	2.72	2.64	3.0	2.38	2.41	n/a	1.41	1.01	n/a
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																					
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																					
Aluminum (Al)	2.01	1.93	4.1	0.589	0.498	16.7	1.82	1	58.2	0.402	0.188	72.5	0.208	0.183	12.8	0.456	0.43	5.9	0.161	0.21	26.4
Antimony (Sb)	0.00017	0.00016	n/a	0.00012	<0.00010	n/a	0.00015	0.00014	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.0002	0.00021	n/a	0.00011	0.00014	n/a
Arsenic (As)	0.00122	0.00117	4.2	0.00069	0.00057	19.0	0.00118	0.00084	33.7	0.00035	0.00029	n/a	0.00028	0.00029	n/a	0.00065	0.00066	1.5	0.00027	0.00035	n/a
Barium (Ba)	0.04	0.0386	3.6	0.0454	0.0455	0.2	0.0323	0.0279	14.6	0.0362	0.0321	12.0	0.0298	0.029	2.7	0.025	0.0249	0.4	0.0359	0.0394	9.3
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	0.0000223	0.000032	35.7	0.000017	0.0000129	n/a	0.0000212	0.0000151	n/a	0.0000126	0.0000108	n/a	0.0000097	0.0000081	n/a	0.0000053	0.0000074	n/a	0.0000534	0.0000729	30.9
Calcium (Ca)	13.4	13	3.0	16	16.1	0.6	12.8	12.3	4.0	11.2	11	1.8	9.86	9.89	0.3	14.5	14.5	0.0	14.8	15	1.3
Chromium (Cr)	0.00216	0.00202	6.7	0.00083	0.00068	19.9	0.00154	0.00282	58.7	0.00043	0.00021	n/a	0.00025	0.00022	n/a	0.00063	0.00062	1.6	0.00018	0.00022	n/a
Cobalt (Co)	0.00129	0.0012	7.2	0.00039	0.00036	n/a	0.00113	0.00069	48.4	0.00023	0.00013	n/a	0.00013	0.00011	n/a	0.00028	0.00026	n/a	0.00017	0.00032	n/a
Copper (Cu)	0.00574	0.00565	1.6	0.00351	0.0033	6.2	0.005	0.00382	26.8	<0.0025	<0.0020	n/a	0.00148	0.00143	n/a	<0.0025	<0.0020	n/a	<0.0040	0.006	100.0
Iron (Fe)	1.79	1.75	2.3	0.684	0.561	19.8	1.1	0.674	48.0	0.4	0.197	68.0	0.228	0.206	10.1	0.379	0.363	4.3	0.124	0.198	46.0
Lead (Pb)	0.000535	0.000511	4.6	0.000203	0.000172	n/a	0.000317	0.000227	33.1	0.000203	0.000139	n/a	0.000118	0.000107	n/a	0.000131	0.000123	n/a	<0.000050	0.000129	n/a
Lithium (Li)	0.0015	0.0014	n/a	<0.0010	<0.0010	n/a	0.0011	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	3.17	3	5.5	3.37	3.3	2.1	2.89	2.53	13.3	2.09	1.92	8.5	1.72	1.73	0.6	2.75	2.76	0.4	2.07	2.03	2.0
Manganese (Mn)	0.0875	0.0825	5.9	0.0249	0.0234	6.2	0.0897	0.0545	48.8	0.024	0.0162	38.8	0.0144	0.0137	5.0	0.0194	0.0183	5.8	0.0121	0.0201	49.7
Mercury (Hg)	0.0000096	0.0000106	n/a	<0.0000050	<0.0000050	n/a	0.0000075	0.0000069	n/a	0.0000066	0.0000067	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000087	0.000078	n/a	0.000296	0.000259	13.3	0.000056	0.000076	n/a	0.000388	0.000391	0.8	0.000409	0.00039	4.8	0.00009	0.00008	n/a	0.000598	0.000556	7.3
Nickel (Ni)	0.00248	0.0023	n/a	0.00096	0.00084	n/a	0.00169	0.00107	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.00063	0.00057	n/a	<0.00050	0.0007	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.423	0.408	3.6	0.343	0.321	6.6	0.296	0.239	21.3	0.295	0.249	16.9	0.225	0.221	n/a	0.226	0.23	n/a	0.324	0.331	2.1
Selenium (Se)	0.000076	<0.000050	n/a	0.000091	0.000069	n/a	0.000057	<0.000050	n/a	<0.000050	0.000058	n/a	0.000062	0.000051	n/a	<0.000050	<0.000050	n/a	0.000126	0.000116	n/a
Silicon (Si)	6.17	6.1	1.1	3.62	3.48	3.9	5.8	4.55	24.2	3.62	3.35	7.7	2.97	2.93	1.4	3.36	3.36	0.0	2.3	2.35	2.2

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS04B			WQS05			WQS01			WQS09			WQS09			WQS04B			WQS06-US		
Date	23-May-2018			2018-05-30			24-May-2018			2018-06-05			2018-06-13			19-Jun-2018			2018-06-20		
ALS Sample ID	L2100747-1	L2100747-4	RPD (%)	L2104191-3	L2104191-8	RPD (%)	L2100747-11	L2100747-12	RPD (%)	L2107408-5	L2107408-8	RPD (%)	L2112729-5	L2112729-8	RPD (%)	L2116657-11	L2116657-17	RPD (%)	L2116657-18	L2116657-2	RPD (%)
Total Metals (cont'd)																					
Silver (Ag)	0.000012	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000020	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	<2.0	<2.0	n/a	2.3	2.2	n/a	<2.0	<2.0	n/a	<2.0	<2.0	n/a	<2.0	<2.0	n/a	2.1	2.2	n/a	<2.0	<2.0	n/a
Strontium (Sr)	0.0682	0.0643	5.9	0.0692	0.0691	0.1	0.0617	0.0592	4.1	0.0539	0.0529	1.9	0.0497	0.0494	0.6	0.0663	0.0664	0.2	0.0466	0.0461	1.1
Sulphur (S)	<0.50	<0.50	n/a	2.76	2.68	2.9	<0.50	<0.50	n/a	1.43	1.3	n/a	0.7	0.71	n/a	0.69	0.85	n/a	7.25	7.33	1.1
Thallium (Tl)	0.000013	0.000013	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	0.048	0.047	n/a	0.015	0.012	n/a	0.033	0.024	n/a	0.011	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Uranium (U)	0.000061	0.000059	3.3	0.000052	0.000053	1.9	0.000045	0.000039	n/a	0.000044	0.000042	n/a	0.000037	0.000035	n/a	0.000036	0.000039	n/a	0.000066	0.00008	19.2
Vanadium (V)	0.00461	0.00446	3.3	0.00203	0.00161	n/a	0.00372	0.00249	39.6	0.0013	0.00081	n/a	0.00105	0.00097	n/a	0.00168	0.00165	n/a	<0.00050	0.00056	n/a
Zinc (Zn)	0.0064	0.0062	n/a	<0.0030	<0.0030	n/a	0.005	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	0.0043	0.0067	n/a
Dissolved Metals																					
Aluminum (Al)	0.0764	0.0637	18.1	0.358	0.345	3.7	0.0597	0.0543	9.5	0.0438	0.0439	0.2	0.0309	0.0264	15.7	0.03	0.0281	6.5	0.128	0.0535	82.1
Antimony (Sb)	<0.00010	<0.00010	n/a	0.0001	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.00018	0.0002	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00038	0.00041	n/a	0.00041	0.00042	n/a	0.00042	0.00042	n/a	0.0002	0.0002	n/a	0.0002	0.0002	n/a	0.00046	0.00047	n/a	0.00025	0.00019	n/a
Barium (Ba)	0.0192	0.0184	4.3	0.0441	0.0429	2.8	0.0172	0.0177	2.9	0.0281	0.0278	1.1	0.0296	0.0279	5.9	0.0236	0.0234	0.9	0.0436	0.0394	10.1
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	<0.0000050	<0.0000050	n/a	0.0000115	0.0000118	n/a	<0.0000050	<0.0000050	n/a	0.0000092	0.0000057	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	0.0000563	0.000055	2.3
Calcium (Ca)	13.7	13.3	3.0	16.2	15.7	3.1	12.5	12.8	2.4	10.5	10.3	1.9	10.5	10.5	0.0	15.7	15.9	1.3	15.5	15.6	0.6
Chromium (Cr)	0.00028	0.00026	n/a	0.00045	0.0005	n/a	0.00026	0.00023	n/a	0.00015	0.00012	n/a	0.00011	0.00011	n/a	0.00021	0.00014	n/a	<0.00010	<0.00010	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	0.0003	0.00029	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.0003	<0.00010	n/a
Copper (Cu)	0.00221	0.00213	n/a	0.00308	0.00299	3.0	0.00165	0.00167	n/a	0.0013	0.00126	n/a	0.00105	0.00095	n/a	0.00124	0.00125	n/a	0.00597	0.00317	61.3
Iron (Fe)	0.047	0.046	n/a	0.431	0.425	1.4	0.037	0.036	n/a	0.067	0.066	n/a	0.042	0.041	n/a	<0.030	<0.030	n/a	0.098	<0.030	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	0.00016	0.00015	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	0.000097	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	2.4	2.3	4.3	3.18	3.25	2.2	2.07	2.09	1.0	1.85	1.85	0.0	1.84	1.7	7.9	2.96	2.96	0.0	2.35	2.27	3.5
Manganese (Mn)	0.00612	0.00585	4.5	0.0213	0.0204	4.3	0.00626	0.0056	11.1	0.00707	0.00717	1.4	0.00095	0.00059	46.8	0.0027	0.00084	105.1	0.00787	0.00836	6.0
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000074	0.000061	n/a	0.000258	0.000238	8.1	<0.000050	<0.000050	n/a	0.0004	0.000411	2.7	0.000442	0.000435	1.6	0.00009	0.000091	n/a	0.000511	0.000609	17.5
Nickel (Ni)	<0.00050	<0.00050	n/a	0.00069	0.00069	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.00053	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.166	0.156	n/a	0.284	0.28	1.4	0.121	0.121	n/a	0.216	0.217	n/a	0.231	0.21	n/a	0.187	0.217	n/a	0.362	0.343	5.4
Selenium (Se)	<0.000050	0.000053	n/a	0.000065	<0.000050	n/a	0.000072	<0.000050	n/a	0.000072	0.000077	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	0.00008	0.000102	n/a
Silicon (Si)	3.2	3.09	3.5	3.62	3.53	2.5	2.82	2.91	3.1	2.86	2.84	0.7	2.58	2.54	1.6	3.2	3.16	1.3	2.48	2.35	5.4
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (																					

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS04B			WQS05			WQS01			WQS09			WQS09			WQS04B			WQS06-US		
Date	23-May-2018			2018-05-30			24-May-2018			2018-06-05			2018-06-13			19-Jun-2018			2018-06-20		
ALS Sample ID	L2100747-1	L2100747-4	RPD (%)	L2104191-3	L2104191-8	RPD (%)	L2100747-11	L2100747-12	RPD (%)	L2107408-5	L2107408-8	RPD (%)	L2112729-5	L2112729-8	RPD (%)	L2116657-11	L2116657-17	RPD (%)	L2116657-18	L2116657-2	RPD (%)
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)																					
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a
Benzo[g,h,i]perylene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[k]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Chrysene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Dibenz[a,h,i]anthracene	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000060	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Fluorene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Naphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
1-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
2-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Phenanthrene	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a
Pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Quinoline	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Volatile Organic Compounds																					
Benzene	<0.00050	<0.00050	n/a	-	-	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	<0.00050	<0.00050	n/a	-	-	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	<0.00050	<0.00050	n/a	-	-	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	<0.00050	<0.00050	n/a	-	-	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	<0.00045	<0.00045	n/a	-	-	-	<0.00045	<0.00045	n/a	-	-	-	-	-	-	-	-	-	-	-	-
ortho-Xylene	<0.00050	<0.00050	n/a	-	-	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	<0.00050	<0.00050	n/a	-	-	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	<0.00075	<0.00075	n/a	-	-	-	<0.00075	<0.00075	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocabrons																					
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiological																					
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)																					
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
"- " = data not available and therefore RPD is not calculated.
n/a = not applicable when both values are less than five times the detection limit.
Red and italicized values exceed the 20% relative percent difference and are more than five times the detection limit.
Red and bold values exceed the 50% relative percent difference and are more than five times the detection limit.

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS04B			WQS09			WQS04B			WQS06-US			WQS08			WQS11			WQS12		
Date	24-Jul-2018			2018-07-25			21-Aug-2018			2018-08-22			2018-09-26			2018-09-25			2018-10-11		
ALS Sample ID	L2136642-18	L2136642-5	RPD (%)	L2136642-10	L2136642-17	RPD (%)	L2152033-15	L2152033-5	RPD (%)	L2152033-16	L2152033-8	RPD (%)	L2172821-21	L2172821-9	RPD (%)	L2172821-13	L2172821-20	RPD (%)	L2180208-10	L2180208-7	RPD (%)
Physical Tests																					
Colour, True	8.4	8.3	n/a	8	7.5	n/a	5.5	5.7	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a
Conductivity (µS/cm)	143	147	2.8	71.5	69.1	3.4	192	191	0.5	159	159	0.0	91.9	93.5	1.7	59.8	59.8	0.0	78	76.6	1.8
Hardness (as CaCO ₃)	69.5	69.4	0.1	31.8	32.7	2.8	98.8	97.2	1.6	74.6	75.5	1.2	39.4	42	6.4	25.4	25.1	1.2	31.9	33	3.4
pH	8.14	8.31	2.1	8.14	7.59	7.0	8.29	8.31	0.2	7.99	7.99	0.0	7.92	7.91	0.1	7.66	7.72	0.8	7.72	7.7	0.3
Total Suspended Solids	12.6	<3.0	n/a	7	5.8	n/a	<3.0	<3.0	n/a	<3.0	11.6	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a
Total Dissolved Solids	87	93	6.7	48	47	n/a	117	114	2.6	99	96	3.1	65	64	n/a	45	44	n/a	56	55	n/a
Turbidity (NTU)	2.56	1.72	39.3	5.74	6.44	11.5	0.57	0.59	3.4	0.54	3	139.0	3.46	3.21	7.5	1.51	0.85	55.9	1	1.12	11.3
Acidity (as CaCO ₃)	1.1	<1.0	n/a	<1.0	2	n/a	<1.0	<1.0	n/a	1.4	1.4	n/a	1.9	1.5	n/a	1.7	1.6	n/a	1.9	2	n/a
Alkalinity, Total (as CaCO ₃)	74.7	73.4	1.8	29.1	29.4	1.0	107	107	0.0	43.5	42.8	1.6	42.3	42.3	0.0	27.1	27.4	1.1	35.1	34.8	0.9
Anions																					
Bromide (Br)	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a
Chloride (Cl)	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	0.55	<0.50	n/a
Fluoride (F)	0.03	0.03	n/a	0.022	0.023	n/a	0.036	0.037	n/a	0.031	0.035	n/a	0.029	0.027	n/a	<0.020	<0.020	n/a	0.023	0.022	n/a
Sulphate (SO ₄)	2.56	2.55	0.4	6.56	6.53	0.5	4.05	3.78	6.9	36.6	37.1	1.4	6.67	6.54	2.0	3.63	3.59	1.1	4.81	4.77	0.8
Nutrients																					
Nitrate (as N)	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	0.0457	0.0496	8.2	0.0052	<0.0050	n/a	0.0127	0.0122	n/a	0.0181	0.0125	n/a
Nitrite (as N)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Total Kjeldahl Nitrogen	<0.050	0.055	n/a	<0.050	<0.050	n/a	0.066	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a
Total Nitrogen	<0.030	0.034	n/a	<0.030	<0.030	n/a	0.057	0.054	n/a	0.063	0.073	n/a	0.066	0.057	n/a	0.07	0.072	n/a	0.061	0.056	n/a
Ammonia as N	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a
Total Phosphorus (as P)	0.0038	0.0046	n/a	0.0125	0.0105	17.4	<0.0020	0.0031	n/a	<0.0020	<0.0020	n/a	0.0068	0.0073	n/a	0.0057	0.003	n/a	0.0035	0.0034	n/a
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	n/a	0.0014	0.0014	n/a	<0.0010	<0.0010	n/a	<0.0010	0.0012	n/a	0.0012	0.0017	n/a	0.0015	0.0018	n/a	0.0016	0.0017	n/a
Carbon																					
Total Organic Carbon	1.7	2.02	n/a	0.96	0.84	n/a	1.55	1.72	n/a	0.66	0.83	n/a	0.96	0.85	n/a	1.25	1.14	n/a	1.22	1.15	n/a
Dissolved Organic Carbon	1.56	1.75	n/a	0.86	0.81	n/a	1.64	1.87	n/a	0.79	0.94	n/a	0.81	0.87	n/a	1.28	1.22	n/a	1.16	1.23	n/a
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																					
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																					
Aluminum (Al)	0.112	0.0783	35.4	0.263	0.251	4.7	0.0338	0.0226	39.7	0.0251	0.0315	22.6	0.115	0.104	10.0	0.0415	0.0425	2.4	0.0369	0.042	12.9
Antimony (Sb)	0.00024	0.00024	n/a	<0.00010	<0.00010	n/a	0.00017	0.00017	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00054	0.00055	1.8	0.00024	0.00023	n/a	0.00041	0.00041	n/a	0.00015	0.00018	n/a	0.00027	0.00025	n/a	0.00023	0.00024	n/a	0.00015	0.00016	n/a
Barium (Ba)	0.0337	0.0335	0.6	0.0386	0.0375	2.9	0.0453	0.0448	1.1	0.0667	0.0682	2.2	0.0487	0.044	10.1	0.0223	0.0206	7.9	0.0283	0.028	1.1
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	0.011	0.012	n/a	<0.010	<0.010	n/a	0.015	0.015	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	<0.0000050	<0.0000050	n/a	0.0000156	0.0000141	n/a	<0.0000050	<0.0000050	n/a	0.000013	0.0000159	n/a	0.000017	0.0000128	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Calcium (Ca)	20.8	21	1.0	10.7	10.5	1.9	28	27.2	2.9	22.2	23.1	4.0	13.5	13.7	1.5	9.16	9.01	1.7	10.9	11	0.9
Chromium (Cr)	0.00029	0.00026	n/a	0.00014	0.00016	n/a	0.00019	0.00019	n/a	<0.00010	<0.00010	n/a	0.00016	<0.00010	n/a	<0.00010	0.00015	n/a	<0.00050	<0.00050	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	0.0001	0.0001	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	<0.0015	<0.0015	n/a	<0.0015	<0.0015	n/a	0.00094	0.00099	n/a	0.00116	0.00119	n/a	0.00083	0.00077	n/a	0.00063	0.00072	n/a	0.00058	0.00065	n/a
Iron (Fe)	<0.090	<0.070	n/a	0.302	0.32	5.8	0.032	<0.030	n/a	<0.030	<0.030	n/a	0.246	0.25	1.6	0.05	0.051	n/a	0.061	0.067	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	0.000387	0.000368	5.0	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	0.000166	0.000153	n/a	<0.000050	0.000051	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	4.03	4.09	1.5	1.54	1.5	2.6	5.14	5.64	9.3	3.38	3.39	0.3	2.01	1.92	4.6	1	0.976	2.4	1.54	1.51	2.0
Manganese (Mn)	0.0101	0.00691	37.5	0.018	0.0173	4.0	0.00528	0.00425	21.6	0.00181	0.00197	8.5	0.0176	0.0164	7.1	0.00674	0.00659	2.3	0.00737	0.00797	7.8
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000107	0.000111	n/a	0.000593	0.000612	3.2	0.000195	0.000201	n/a	0.000722	0.000685	5.3	0.000693	0.000675	2.6	0.000405	0.000398	1.7	0.000398	0.000401	0.8
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.23	0.227	n/a	0.287	0.278	3.2	0.273	0.284	3.9	0.406	0.412	1.5	0.33	0.315	4.7	0.286	0.282	1.4	0.319	0.317	0.6
Selenium (Se)	<0.000050	<0.000050	n/a	0.000083	0.000089	n/a	<0.000050	0.000053	n/a	0.000075	0.000073	n/a	0.000114	0.000081	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Silicon (Si)	3.4	3.4	0.0	2.39	2.39	0.0	3.53	3.63	2.8	2.82	2.8	0.7	2.62	2.45	6.7	1.67	1.69	1.2	2.18	2.16	0.9

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS04B			WQS09			WQS04B			WQS06-US			WQS08			WQS11			WQS12		
Date	24-Jul-2018			2018-07-25			21-Aug-2018			2018-08-22			2018-09-26			2018-09-25			2018-10-11		
ALS Sample ID	L2136642-18	L2136642-5	RPD (%)	L2136642-10	L2136642-17	RPD (%)	L2152033-15	L2152033-5	RPD (%)	L2152033-16	L2152033-8	RPD (%)	L2172821-21	L2172821-9	RPD (%)	L2172821-13	L2172821-20	RPD (%)	L2180208-10	L2180208-7	RPD (%)
Total Metals (cont'd)																					
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	3.1	3.1	n/a	<2.0	<2.0	n/a	3.9	4.4	n/a	2	<2.0	n/a	<2.0	<2.0	n/a	<2.0	<2.0	n/a	<2.0	<2.0	n/a
Strontium (Sr)	0.0976	0.0989	1.3	0.0501	0.0502	0.2	0.133	0.131	1.5	0.0734	0.0767	4.4	0.069	0.0699	1.3	0.035	0.0347	0.9	0.047	0.046	2.2
Sulphur (S)	0.6	0.74	n/a	2.06	1.87	n/a	0.96	1.1	n/a	12.4	12.9	4.0	2.36	2.22	n/a	1.3	1.34	n/a	1.8	1.74	n/a
Thallium (Tl)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Uranium (U)	0.000067	0.000065	3.0	0.000039	0.000038	n/a	0.00014	0.000145	3.5	0.000035	0.000033	n/a	0.000062	0.000059	5.0	0.000026	0.000025	n/a	0.000036	0.000037	n/a
Vanadium (V)	0.00102	0.001	n/a	0.00072	0.00069	n/a	0.00078	0.00082	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Zinc (Zn)	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	0.0033	n/a	<0.0030	<0.0030	n/a
Dissolved Metals																					
Aluminum (Al)	0.0101	0.0109	n/a	0.0451	0.0379	17.3	0.0071	0.0066	n/a	0.0079	0.0079	n/a	0.007	0.0057	n/a	0.0086	0.0072	n/a	0.0073	0.0087	n/a
Antimony (Sb)	0.00023	0.00023	n/a	<0.00010	<0.00010	n/a	0.00016	0.00016	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.0004	0.00043	n/a	<0.00010	<0.00010	n/a	0.00042	0.00039	n/a	0.00014	0.00014	n/a	0.00011	0.00012	n/a	0.00011	0.00011	n/a	0.00012	0.00011	n/a
Barium (Ba)	0.0327	0.0338	3.3	0.0331	0.0347	4.7	0.0417	0.0434	4.0	0.0655	0.0691	5.3	0.0413	0.0444	7.2	0.0235	0.0228	3.0	0.0299	0.0293	2.0
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	0.011	0.012	n/a	<0.010	<0.010	n/a	0.017	0.016	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	<0.0000050	<0.0000050	n/a	0.0000066	0.0000103	n/a	<0.0000050	<0.0000050	n/a	0.000013	0.000014	n/a	<0.0000050	0.0000068	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Calcium (Ca)	21.1	20.9	1.0	10.4	10.7	2.8	30.1	29.6	1.7	23.8	24.1	1.3	12.7	13.6	6.8	8.52	8.41	1.3	10.2	10.7	4.8
Chromium (Cr)	0.00018	0.0002	n/a	<0.00010	<0.00010	n/a	0.00016	0.00016	n/a	<0.00010	0.00011	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	0.00088	0.0009	n/a	0.00061	0.00057	n/a	0.00081	0.00079	n/a	0.0009	0.00089	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.00055	0.0006	n/a
Iron (Fe)	<0.030	<0.030	n/a	0.066	0.06	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a	0.057	0.044	n/a	<0.030	<0.030	n/a	<0.030	0.032	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	0.000072	0.000062	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	4.06	4.18	2.9	1.44	1.46	1.4	5.75	5.67	1.4	3.65	3.71	1.6	1.87	1.94	3.7	1	0.992	0.8	1.53	1.55	1.3
Manganese (Mn)	0.00449	0.00419	6.9	0.00995	0.00971	2.4	0.00299	0.00285	4.8	0.00108	0.00105	2.8	0.0129	0.0134	3.8	0.00336	0.00327	2.7	0.00491	0.00597	19.5
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000108	0.000105	n/a	0.000637	0.000595	6.8	0.000178	0.000187	n/a	0.000723	0.000733	1.4	0.000681	0.000685	0.6	0.000391	0.000371	5.2	0.00044	0.000453	2.9
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.219	0.251	13.6	0.244	0.241	n/a	0.328	0.326	0.6	0.463	0.47	1.5	0.291	0.34	15.5	0.32	0.311	2.9	0.33	0.335	1.5
Selenium (Se)	<0.000050	0.000073	n/a	0.000057	0.00007	n/a	<0.000050	<0.000050	n/a	0.000092	0.000072	n/a	0.000086	0.000086	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Silicon (Si)	3.27	3.34	2.1	2.04	1.97	3.5	3.65	3.69	1.1	2.94	2.89	1.7	2.33	2.33	0.0	1.64	1.58	3.7	2.13	2.14	0.5
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	3.2	3.3	n/a	<2.0	<2.0	n/a	4.2	4.2	n/a	2	2	n/a	<2.0								

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS04B			WQS09			WQS04B			WQS06-US			WQS08			WQS11			WQS12		
Date	24-Jul-2018			2018-07-25			21-Aug-2018			2018-08-22			2018-09-26			2018-09-25			2018-10-11		
ALS Sample ID	L2136642-18	L2136642-5	RPD (%)	L2136642-10	L2136642-17	RPD (%)	L2152033-15	L2152033-5	RPD (%)	L2152033-16	L2152033-8	RPD (%)	L2172821-21	L2172821-9	RPD (%)	L2172821-13	L2172821-20	RPD (%)	L2180208-10	L2180208-7	RPD (%)
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)																					
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a
Benzo[g,h,i]perylene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[k]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Chrysene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Fluorene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Naphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
1-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
2-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Phenanthrene	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a
Pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Quinoline	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Volatile Organic Compounds																					
Benzene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	<0.00045	<0.00045	n/a	<0.00045	<0.00045	n/a	-	-	-	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	<0.00075	<0.00075	n/a	<0.00075	<0.00075	n/a	-	-	-	-	-	-	-	-	-
Hydrocabrons																					
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	<0.10	<0.10	n/a	<0.10	<0.10	n/a	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	<0.10	<0.10	n/a	<0.10	<0.10	n/a	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	n/a	<0.25	<0.25	n/a	-	-	-	-	-	-	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a
EPH19-32	<0.25	<0.25	n/a	<0.25	<0.25	n/a	-	-	-	-	-	-	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a
LEPH	<0.25	<0.25	n/a	<0.25	<0.25	n/a	-	-	-	-	-	-	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a
HEPH	<0.25	<0.25	n/a	<0.25	<0.25	n/a	-	-	-	-	-	-	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a
Radiological																					
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)																					
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
"- " = data not available and therefore RPD is not calculated.
n/a = not applicable when both values are less than five times the detection limit.
Red and italicized values exceed the 20% relative percent difference and are more than five times the detection limit.
Red and bold values exceed the 50% relative percent difference and are more than five times the detection limit.

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS12			WQS01			WQS05			WQS06			WQS13			WQS05			WQS04B		
Date	2018-10-23			2-Oct-2018			2018-10-16			2018-10-23			2018-11-20			2018-11-21			12-Dec-2018		
ALS Sample ID	L2186826-14	L2186826-19	RPD (%)	L2175314-1	L2175314-8	RPD (%)	L2182796-3	L2182796-8	RPD (%)	L2186826-18	L2186826-8	RPD (%)	L2200625-17	L2200625-20	RPD (%)	L2200625-21	L2200625-8	RPD (%)	L2210255-20	L2210255-6	RPD (%)
Physical Tests																					
Colour, True	<5.0	<5.0	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a
Conductivity (µS/cm)	75.6	75.9	0.4	168	160	4.9	176	175	0.6	171	171	0.0	153	153	0.0	184	182	1.1	230	232	0.9
Hardness (as CaCO ₃)	36.1	37	2.5	79.3	79	0.4	77.6	77.1	0.6	80.9	82.8	2.3	68.4	69.3	1.3	82.4	82.9	0.6	113	112	0.9
pH	7.47	7.6	1.7	8.25	8.14	1.3	7.91	7.92	0.1	7.81	7.71	1.3	7.97	7.97	0.0	8.07	8.11	0.5	8.32	8.32	0.0
Total Suspended Solids	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	3.1	n/a
Total Dissolved Solids	57	54	n/a	106	102	3.8	104	106	1.9	115	116	0.9	101	102	1.0	117	117	0.0	154	151	2.0
Turbidity (NTU)	1.24	0.78	45.5	0.69	0.47	37.9	0.66	1.07	47.4	0.73	1.21	49.5	0.45	0.36	n/a	0.7	0.69	1.4	0.89	0.76	15.8
Acidity (as CaCO ₃)	2	2.1	n/a	1.1	<1.0	n/a	2.1	2	n/a	1.9	1.9	n/a	1.9	1.9	n/a	1.8	1.5	n/a	<1.0	<1.0	n/a
Alkalinity, Total (as CaCO ₃)	33.6	32.4	3.6	89.7	85.8	4.4	56.5	56	0.9	46.2	47.8	3.4	45.5	45.7	0.4	66.6	64.3	3.5	116	116	0.0
Anions																					
Bromide (Br)	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a
Chloride (Cl)	0.58	0.69	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a
Fluoride (F)	0.024	0.025	n/a	0.031	0.031	n/a	0.032	0.032	n/a	0.031	0.033	n/a	0.027	0.027	n/a	0.034	0.031	n/a	0.038	0.038	n/a
Sulphate (SO ₄)	4.85	4.9	1.0	2.71	2.72	0.4	30.2	30.2	0.0	36.8	36.9	0.3	28.6	28.5	0.4	26.5	26.8	1.1	6.46	6.47	0.2
Nutrients																					
Nitrate (as N)	0.0257	0.0301	15.8	<0.0050	<0.0050	n/a	0.0481	0.0473	1.7	0.0688	0.0746	8.1	0.0896	0.0888	0.9	0.0663	0.0673	1.5	0.0319	0.0325	1.9
Nitrite (as N)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Total Kjeldahl Nitrogen	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	0.078	n/a	0.057	0.089	n/a	0.056	<0.050	n/a	<0.050	<0.050	n/a
Total Nitrogen	0.069	0.072	n/a	0.036	<0.030	n/a	0.087	0.086	n/a	0.11	0.107	n/a	0.122	0.193	45.1	0.106	0.11	n/a	0.091	0.077	n/a
Ammonia as N	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a
Total Phosphorus (as P)	0.0024	0.0029	n/a	<0.0020	<0.0020	n/a	<0.0020	<0.0020	n/a	0.0022	<0.0020	n/a	<0.0020	<0.0020	n/a	<0.0020	<0.0020	n/a	0.0033	0.0028	n/a
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Carbon																					
Total Organic Carbon	0.99	0.96	n/a	1.62	1.56	n/a	1.44	1.7	n/a	1.2	1.01	n/a	1.64	1.57	n/a	1.71	1.7	n/a	1.91	2.03	n/a
Dissolved Organic Carbon	0.84	1.12	n/a	1.42	0.85	n/a	1.58	1.72	n/a	1.29	1.11	n/a	1.58	1.68	n/a	2	1.8	n/a	1.89	2.13	n/a
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																					
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																					
Aluminum (Al)	0.0491	0.0248	65.8	0.0135	0.013	n/a	0.0321	0.0374	15.3	0.0162	0.0211	26.3	0.0196	0.025	24.2	0.0478	0.0465	2.8	0.0468	0.0096	131.9
Antimony (Sb)	<0.00010	<0.00010	n/a	0.00015	0.00015	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.0001	0.0001	n/a
Arsenic (As)	0.00017	0.00014	n/a	0.0005	0.00052	3.9	0.0002	0.00019	n/a	0.00012	0.00015	n/a	0.00017	0.00018	n/a	0.00018	0.00017	n/a	0.00032	0.00028	n/a
Barium (Ba)	0.0278	0.028	0.7	0.0334	0.0337	0.9	0.0597	0.0586	1.9	0.0631	0.0641	1.6	0.0621	0.0629	1.3	0.0627	0.0569	9.7	0.0416	0.0427	2.6
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	0.015	0.015	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	0.017	0.018	n/a
Cadmium (Cd)	0.000008	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	0.0000079	0.0000079	n/a	0.0000068	0.0000095	n/a	0.0000057	0.000008	n/a	0.0000063	0.0000105	n/a	<0.0000050	<0.0000050	n/a
Calcium (Ca)	10.7	10.6	0.9	25	25.3	1.2	23.1	22.9	0.9	24.6	23.4	5.0	22.1	22.2	0.5	25.6	25.5	0.4	33.1	32.6	1.5
Chromium (Cr)	0.00012	<0.00010	n/a	0.00032	0.00031	n/a	0.00016	0.00015	n/a	<0.00010	<0.00010	n/a	0.00013	0.00012	n/a	0.00019	0.0002	n/a	0.00022	0.00022	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	0.00062	0.00061	n/a	0.00069	0.00068	n/a	0.00088	0.00091	n/a	0.00079	0.00093	n/a	0.00101	0.00098	n/a	0.00095	0.00095	n/a	0.00088	0.00084	n/a
Iron (Fe)	0.079	0.041	n/a	<0.030	<0.030	n/a	0.034	0.04	n/a	<0.030	0.032	n/a	<0.030	<0.030	n/a	0.053	0.049	n/a	0.062	<0.030	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	0.000117	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	1.49	1.59	6.5	4.41	4.64	5.1	4.11	4.22	2.6	4.51	4.11	9.3	3.6	3.69	2.5	5.18	5.23	1.0	6.81	7.09	4.0
Manganese (Mn)	0.0102	0.00666	42.0	0.001	0.00092	8.3	0.00353	0.00366	3.6	0.00332	0.0036	8.1	0.00051	0.00104	68.4	0.00415	0.0042	1.2	0.00677	0.00451	40.1
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000397	0.000405	2.0	0.000112	0.000111	n/a	0.000411	0.000438	6.4	0.000516	0.000479	7.4	0.000528	0.000496	6.3	0.000418	0.000413	1.2	0.000176	0.000166	n/a
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.322	0.335	4.0	0.176	0.179	n/a	0.358	0.364	1.7	0.386	0.383	0.8	0.321	0.324	0.9	0.347	0.355	2.3	0.252	0.258	2.4
Selenium (Se)	<0.000050	<0.000050	n/a	0.000058	0.000055	n/a	0.000117	0.000058	n/a	0.000093	0.000079	n/a	0.000115	0.0001	n/a	0.000056	0.000057	n/a	<0.000050	<0.000050	n/a
Silicon (Si)	2.22	2.19	1.4	3.03	3.07	1.3	2.71	2.71	0.0	2.66	2.66	0.0	2.59	2.65	2.3	2.76	2.85	3.2	3.41	3.47	1.7

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS12			WQS01			WQS05			WQS06			WQS13			WQS05			WQS04B		
Date	2018-10-23			2-Oct-2018			2018-10-16			2018-10-23			2018-11-20			2018-11-21			12-Dec-2018		
ALS Sample ID	L2186826-14	L2186826-19	RPD (%)	L2175314-1	L2175314-8	RPD (%)	L2182796-3	L2182796-8	RPD (%)	L2186826-18	L2186826-8	RPD (%)	L2200625-17	L2200625-20	RPD (%)	L2200625-21	L2200625-8	RPD (%)	L2210255-20	L2210255-6	RPD (%)
Total Metals																					
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	<2.0	<2.0	n/a	3.7	3.7	n/a	2.6	2.6	n/a	2.8	2.7	n/a	2.1	2.1	n/a	3.5	3.5	n/a	5	4.9	n/a
Strontium (Sr)	0.0445	0.0432	3.0	0.119	0.124	4.1	0.0829	0.085	2.5	0.084	0.0819	2.5	0.0738	0.0756	2.4	0.0963	0.0983	2.1	0.143	0.144	0.7
Sulphur (S)	<2.0	1.26	n/a	0.86	0.97	n/a	10.6	10.2	3.8	13	12.6	3.1	9.91	9.92	0.1	9.84	9.43	4.3	2.37	2.36	n/a
Thallium (Tl)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Uranium (U)	0.000033	0.000031	n/a	0.000123	0.000123	0.0	0.000054	0.000049	9.7	0.000039	0.000043	n/a	0.000059	0.000053	10.7	0.000082	0.00008	2.5	0.000223	0.000226	1.3
Vanadium (V)	<0.00050	<0.00050	n/a	0.00092	0.00094	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.00053	<0.00050	n/a
Zinc (Zn)	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a
Dissolved Metals																					
Aluminum (Al)	0.0047	0.0073	n/a	0.0034	0.0032	n/a	0.0045	0.0054	n/a	0.0061	0.0049	n/a	0.0044	0.0044	n/a	0.0061	0.0059	n/a	0.0088	0.0381	124.9
Antimony (Sb)	<0.00010	<0.00010	n/a	0.00014	0.00014	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00011	<0.00010	n/a	0.00043	0.00044	n/a	0.00017	0.00015	n/a	<0.00010	<0.00010	n/a	0.00014	0.00013	n/a	0.00012	0.00013	n/a	0.00024	0.00027	n/a
Barium (Ba)	0.0295	0.0285	3.4	0.0323	0.0327	1.2	0.0633	0.0611	3.5	0.0662	0.0668	0.9	0.0638	0.0638	0.0	0.0578	0.0576	0.3	0.0447	0.0445	0.4
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	0.015	0.015	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	0.016	0.016	n/a
Cadmium (Cd)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	0.0000061	0.0000052	n/a	0.0000081	0.0000075	n/a	0.0000054	0.0000058	n/a	0.0000053	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Calcium (Ca)	11.8	12.2	3.3	24.3	23.9	1.7	23.6	23.7	0.4	25.7	26.4	2.7	21.8	22.1	1.4	24.9	25.4	2.0	33.5	33.4	0.3
Chromium (Cr)	<0.00010	<0.00010	n/a	0.00029	0.00033	n/a	0.00015	0.00014	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.00019	0.00022	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	<0.00050	0.00057	n/a	0.0006	0.00061	n/a	0.00088	0.00085	n/a	0.00078	0.00074	n/a	0.00087	0.00091	n/a	0.00083	0.0008	n/a	0.00079	0.00088	n/a
Iron (Fe)	<0.030	<0.030	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a	<0.030	0.056	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	1.6	1.59	0.6	4.5	4.69	4.1	4.54	4.36	4.0	4.03	4.09	1.5	3.4	3.41	0.3	4.94	4.76	3.7	7.07	7.01	0.9
Manganese (Mn)	0.00543	0.00861	45.3	0.00068	0.00068	0.0	0.00313	0.00285	9.4	0.0026	0.00256	1.6	0.00012	0.00014	n/a	0.00282	0.00279	1.1	0.0044	0.00587	28.6
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000393	0.000449	13.3	0.000095	0.000097	n/a	0.000419	0.000433	3.3	0.000483	0.000529	9.1	0.000542	0.000528	2.6	0.0004	0.000365	9.2	0.000186	0.000199	n/a
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.337	0.322	4.6	0.164	0.17	n/a	0.369	0.382	3.5	0.393	0.388	1.3	0.318	0.318	0.0	0.334	0.329	1.5	0.246	0.255	3.6
Selenium (Se)	0.000056	<0.000050	n/a	0.000052	0.000052	n/a	0.000109	0.000067	n/a	0.000086	0.00011	n/a	0.0001	0.000111	n/a	0.000054	0.000081	n/a	<0.000050	<0.000050	n/a
Silicon (Si)	2.08	2.08	0.0	2.87	2.93	2.1	2.69	2.52	6.5	2.51	2.37	5.7	2.54	2.52	0.8	2.72	2.67	1.9	3.4	3.53	3.8
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	<2.0	<2.0	n/a	3.7	3.8	n/a	3.1	3	n/a	2.6	2.7	n/a									

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS12			WQS01			WQS05			WQS06			WQS13			WQS05			WQS04B		
Date	2018-10-23			2-Oct-2018			2018-10-16			2018-10-23			2018-11-20			2018-11-21			12-Dec-2018		
ALS Sample ID	L2186826-14	L2186826-19	RPD (%)	L2175314-1	L2175314-8	RPD (%)	L2182796-3	L2182796-8	RPD (%)	L2186826-18	L2186826-8	RPD (%)	L2200625-17	L2200625-20	RPD (%)	L2200625-21	L2200625-8	RPD (%)	L2210255-20	L2210255-6	RPD (%)
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)																					
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a
Benzo[g,h,i]perylene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[k]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Chrysene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Fluorene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Naphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
1-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
2-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Phenanthrene	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a
Pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Quinoline	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Volatile Organic Compounds																					
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	<0.00045	<0.00045	n/a	<0.00045	<0.00045	n/a	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	<0.00075	<0.00075	n/a	<0.00075	<0.00075	n/a	-	-	-
Hydrocabrons																					
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a
EPH19-32	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a
LEPH	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a
HEPH	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a
Radiological																					
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)																					
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
"- " = data not available and therefore RPD is not calculated.
n/a = not applicable when both values are less than five times the detection limit.
Red and italicized values exceed the 20% relative percent difference and are more than five times the detection limit.
Red and bold values exceed the 50% relative percent difference and are more than five times the detection limit.

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS12			WQS13			WQS10			WQS08			WQS05			WQS11-US			WQS05		
Date	2018-12-11			2019-01-22			2019-01-22			2019-02-20			2019-02-21			2019-03-12			2019-03-13		
ALS Sample ID	L2210255-16	L2210255-21	RPD (%)	L2224631-17	L2224631-21	RPD (%)	L2224631-13	L2224631-20	RPD (%)	L2235919-11	L2235919-21	RPD (%)	L2235919-20	L2235919-8	RPD (%)	L2244461-15	L2244461-21	RPD (%)	L2244461-20	L2244461-8	RPD (%)
Physical Tests																					
Colour, True	<5.0	<5.0	n/a	<5.0	<5.0	n/a	8.6	7.2	n/a	<5.0	5.1	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a	<5.0	<5.0	n/a
Conductivity (µS/cm)	79	80.2	1.5	162	161	0.6	119	118	0.8	114	115	0.9	214	211	1.4	75.2	80.5	6.8	218	215	1.4
Hardness (as CaCO ₃)	35	35.4	1.1	73.4	72.4	1.4	53.7	55.2	2.8	54.6	52	4.9	103	102	1.0	33.2	32.7	1.5	95.2	99.5	4.4
pH	7.83	7.76	0.9	7.86	7.89	0.4	7.88	7.87	0.1	7.85	7.85	0.0	8.11	8.09	0.2	7.63	7.65	0.3	8.1	8.06	0.5
Total Suspended Solids	<3.0	3.3	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a	<3.0	<3.0	n/a
Total Dissolved Solids	63	52	n/a	98	93	5.2	72	72	0.0	68	73	7.1	128	131	2.3	50	49	n/a	145	137	5.7
Turbidity (NTU)	0.9	0.87	3.4	0.33	0.31	n/a	1.27	1.27	0.0	1.02	1.06	3.8	0.34	0.32	n/a	0.43	0.44	n/a	0.38	0.36	n/a
Acidity (as CaCO ₃)	1.1	1.4	n/a	2.6	2.4	n/a	2.4	2.4	n/a	2.2	2.3	n/a	1.9	1.8	n/a	2.2	2.3	n/a	1.4	1.7	n/a
Alkalinity, Total (as CaCO ₃)	34.1	33.6	1.5	55.5	55.7	0.4	54.4	55.5	2.0	52.2	53.5	2.5	82.1	80.1	2.5	33.9	34.8	2.6	81.8	86.1	5.1
Anions																					
Bromide (Br)	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a
Chloride (Cl)	<0.50	<0.50	n/a	0.51	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	0.74	0.66	n/a	<0.50	<0.50	n/a
Fluoride (F)	0.026	0.027	n/a	0.033	0.031	n/a	0.036	0.036	n/a	0.033	0.032	n/a	0.037	0.036	n/a	0.028	0.024	n/a	0.041	0.041	n/a
Sulphate (SO ₄)	4.94	4.56	8.0	25.3	25.3	0.0	6.75	6.76	0.1	5.59	5.57	0.4	28.6	28.7	0.3	4.78	4.15	14.1	30	30	0.0
Nutrients																					
Nitrate (as N)	0.0325	0.0304	6.7	0.124	0.126	1.6	0.0589	0.0598	1.5	0.0682	0.0652	4.5	0.13	0.127	2.3	0.0514	0.0519	1.0	0.142	0.142	0.0
Nitrite (as N)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Total Kjeldahl Nitrogen	<0.050	0.053	n/a	<0.050	<0.050	n/a	<0.050	0.063	n/a	0.051	0.05	n/a	0.053	0.053	n/a	0.051	0.051	n/a	<0.050	<0.050	n/a
Total Nitrogen	0.088	0.102	n/a	0.17	0.153	10.5	0.114	0.13	n/a	0.103	0.11	n/a	0.155	0.164	5.6	0.12	0.116	n/a	0.162	0.167	3.0
Ammonia as N	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a	0.0088	0.0075	n/a	0.0067	<0.0050	n/a	0.0059	0.005	n/a	<0.0050	<0.0050	n/a
Total Phosphorus (as P)	0.0042	0.0035	n/a	<0.0020	<0.0020	n/a	0.0038	0.0038	n/a	0.0033	0.0035	n/a	<0.0020	<0.0020	n/a	0.003	0.0028	n/a	<0.0020	<0.0020	n/a
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Carbon																					
Total Organic Carbon	1.85	1.64	n/a	1.66	1.96	n/a	1.96	1.97	n/a	1.18	1.34	n/a	1.65	1.77	n/a	1.69	1.88	n/a	1.42	1.19	n/a
Dissolved Organic Carbon	2	1.6	n/a	2.24	1.88	n/a	1.91	1.93	n/a	1.19	1.35	n/a	1.52	1.52	n/a	1.59	1.59	n/a	1.05	1.42	n/a
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide																					
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																					
Aluminum (Al)	0.0385	0.0508	27.5	0.0137	0.0155	12.3	0.0417	0.036	14.7	0.021	0.0215	2.4	0.0111	0.012	n/a	0.0189	0.0192	1.6	0.0106	0.0121	n/a
Antimony (Sb)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00019	0.00017	n/a	0.00017	0.00017	n/a	0.00021	0.00022	n/a	0.00016	0.00018	n/a	0.00013	0.00014	n/a	0.00019	0.0002	n/a	0.00017	0.00018	n/a
Barium (Ba)	0.0243	0.0247	1.6	0.0666	0.0721	7.9	0.0395	0.039	1.3	0.043	0.041	4.8	0.0579	0.059	1.9	0.0229	0.0235	2.6	0.0571	0.0576	0.9
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	0.0000057	0.000007	n/a	0.0000079	0.0000057	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	0.0000067	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Calcium (Ca)	11.1	10.6	4.6	23.5	25.5	8.2	16.9	16.8	0.6	17.8	16.3	8.8	29.2	27.1	7.5	11.2	11.4	1.8	29.6	30.5	3.0
Chromium (Cr)	0.00011	0.00012	n/a	0.00012	0.00013	n/a	0.0002	0.00018	n/a	0.00017	0.00028	n/a	0.00018	0.0001	n/a	<0.00010	0.0001	n/a	0.00013	<0.00010	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	0.00061	0.00065	n/a	0.00091	0.00086	n/a	0.00068	0.00063	n/a	0.00059	0.00052	n/a	0.00071	0.00067	n/a	0.00056	0.00056	n/a	0.00056	0.00058	n/a
Iron (Fe)	0.087	0.102	n/a	<0.030	<0.030	n/a	0.263	0.256	2.7	0.215	0.218	1.4	<0.030	<0.030	n/a	0.051	0.049	n/a	<0.030	<0.030	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	1.64	1.63	0.6	3.83	4.09	6.6	3.03	3.03	0.0	2.59	2.71	4.5	5.36	5.49	2.4	1.62	1.67	3.0	5.63	5.55	1.4
Manganese (Mn)	0.0134	0.0128	4.6	0.00042	0.00038	n/a	0.00946	0.00947	0.1	0.00929	0.00923	0.6	0.00203	0.00186	8.7	0.00495	0.00483	2.5	0.00275	0.00261	5.2
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000374	0.000367	1.9	0.000526	0.000562	6.6	0.000466	0.000442	5.3	0.000458	0.000423	7.9	0.000387	0.000371	4.2	0.000336	0.000353	4.9	0.000396	0.000419	5.6
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.312	0.331	5.9	0.302	0.342	12.4	0.268	0.263	1.9	0.258	0.266	3.1	0.347	0.356	2.6	0.334	0.343	2.7	0.379	0.384	1.3
Selenium (Se)	<0.000050	<0.000050	n/a	0.000085	0.00007	n/a	0.000081	0.000089	n/a	0.0001	0.000091	n/a	0.000083	0.000071	n/a	<0.000050	<0.000050	n/a	0.000064	0.000058	n/a
Silicon (Si)	2.3	2.32	0.9	2.46	2.54	3.2	3.34	3.34	0.0	3.69	3.48	5.9	2.5	2.52	0.8	2.29	2.31	0.9	2.63	2.6	1.1

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS12			WQS13			WQS10			WQS08			WQS05			WQS11-US			WQS05		
Date	2018-12-11			2019-01-22			2019-01-22			2019-02-20			2019-02-21			2019-03-12			2019-03-13		
ALS Sample ID	L2210255-16	L2210255-21	RPD (%)	L2224631-17	L2224631-21	RPD (%)	L2224631-13	L2224631-20	RPD (%)	L2235919-11	L2235919-21	RPD (%)	L2235919-20	L2235919-8	RPD (%)	L2244461-15	L2244461-21	RPD (%)	L2244461-20	L2244461-8	RPD (%)
Total Metals																					
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	<2.0	<2.0	n/a	2.5	2.4	n/a	2.5	2.4	n/a	2.1	2.1	n/a	4.5	4.5	n/a	<2.0	<2.0	n/a	4.8	4.8	n/a
Strontium (Sr)	0.0466	0.0459	1.5	0.0768	0.0851	10.3	0.0781	0.0781	0.0	0.0814	0.0744	9.0	0.107	0.101	5.8	0.046	0.0477	3.6	0.113	0.113	0.0
Sulphur (S)	1.72	1.61	n/a	8.08	8.6	6.2	1.89	1.98	n/a	1.7	1.54	n/a	8.95	9.07	1.3	1.19	1.24	n/a	9.56	9.33	2.4
Thallium (Tl)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Uranium (U)	0.000035	0.000035	n/a	0.000073	0.000078	6.6	0.000061	0.00006	1.7	0.000052	0.000049	5.9	0.000116	0.000115	0.9	0.000031	0.000032	n/a	0.000155	0.000148	4.6
Vanadium (V)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Zinc (Zn)	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a
Dissolved Metals																					
Aluminum (Al)	0.0088	0.0077	n/a	0.0045	0.0045	n/a	0.0092	0.0101	n/a	0.0053	0.006	n/a	0.0037	0.0035	n/a	0.0049	0.0053	n/a	<0.0030	<0.0030	n/a
Antimony (Sb)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00015	0.00013	n/a	0.00015	0.00014	n/a	0.00017	0.00016	n/a	0.0002	0.00016	n/a	0.00012	0.00013	n/a	0.00013	0.00012	n/a	0.00015	0.00011	n/a
Barium (Ba)	0.0255	0.0248	2.8	0.0686	0.0686	0.0	0.0405	0.0414	2.2	0.0413	0.0416	0.7	0.0615	0.0592	3.8	0.0233	0.0223	4.4	0.061	0.0565	7.7
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	<0.0000050	<0.0000050	n/a	0.0000092	0.0000064	n/a	0.0000051	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Calcium (Ca)	11.2	11.4	1.8	23.3	23.1	0.9	16.6	17.5	5.3	17.1	16.2	5.4	31.5	31.4	0.3	10.6	10.3	2.9	28.2	29.8	5.5
Chromium (Cr)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	0.00016	0.00011	n/a	0.00016	0.0001	n/a	0.00018	0.00039	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Cobalt (Co)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	0.00054	0.00055	n/a	0.00089	0.0009	n/a	0.00056	0.00055	n/a	<0.00050	<0.00050	n/a	0.00007	0.00066	n/a	0.00054	0.0005	n/a	0.00061	0.00058	n/a
Iron (Fe)	0.042	0.04	n/a	<0.030	<0.030	n/a	0.159	0.159	0.0	0.124	0.13	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a	<0.030	<0.030	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	1.69	1.69	0.0	3.68	3.58	2.8	2.95	2.83	4.2	2.88	2.83	1.8	6.02	5.84	3.0	1.64	1.67	1.8	6	6.11	1.8
Manganese (Mn)	0.00931	0.00923	0.9	0.00014	<0.00010	n/a	0.00767	0.00743	3.2	0.00686	0.00697	1.6	0.00177	0.00167	5.8	0.004	0.00407	1.7	0.00289	0.00246	16.1
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000413	0.00039	5.7	0.000534	0.00053	0.8	0.00045	0.000432	4.1	0.000392	0.000389	0.8	0.000417	0.00035	17.5	0.000335	0.000338	0.9	0.000376	0.000386	2.6
Nickel (Ni)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.319	0.318	0.3	0.319	0.317	0.6	0.279	0.284	1.8	0.274	0.265	3.3	0.365	0.361	1.1	0.301	0.309	2.6	0.365	0.367	0.5
Selenium (Se)	<0.000050	<0.000050	n/a	0.000089	0.000086	n/a	0.000071	0.000066	n/a	0.000081	0.000088	n/a	0.000055	0.000067	n/a	<0.000050	<0.000050	n/a	0.000062	0.000054	n/a
Silicon (Si)	2.3	2.27	1.3	2.59	2.54	1.9	3.48	3.49	0.3	3.61	3.59	0.6	2.62	2.59	1.2	2.19	2.21	0.9	2.58	2.6	0.8
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	<2.0	<2.0	n/a	2.2	2.1	n/a	2.2	2.2	n/a	2.4	2.3	n/a	4.8	4.6	n/a	<2.0	<2.0	n/a	5.1	4.9	n/a
Strontium (Sr)	0.051	0.05	2.0	0.0739	0.0767	3.7	0.0781	0.0789	1.0	0.0802	0.0811	1.1	0.118	0.116	1.7	0.0469	0.0456	2.8	0.113	0.117	3.5
Sulphur (S)	1.73	1.59	n/a	8.43	8.13	3.6	2.15	2.17	n/a	1.61	1.42	n/a	9.27	8.86	4.5	1.26	1.36	n/a	9.46	9.61	1.6
Thallium (Tl)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Uranium (U)	0.000032	0.000032	n/a	0.000064	0.000069	7.5	0.000058	0.000053	9.0	0.000052	0.000051	1.9	0.000135	0.000136	0.7	0.00003	0.000028	n/a	0.00015	0.000145	3.4
Vanadium (V)	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Zinc (Zn)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	0.002	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Aggregate Organics																					
Phenols (4AAP)	0.0014	0.0011	n/a	0.0052	0.005	3.9	0.0045	0.0019	n/a	0.0022	<0.0010	n/a	<0.0010	0.0027	n/a	0.0021	0.0018	n/a	0.0015	0.0014	n/a
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons																					
Acenaphthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Acenaphthylene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Acridine	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Anthracene																					

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS12			WQS13			WQS10			WQS08			WQS05			WQS11-US			WQS05		
Date	2018-12-11			2019-01-22			2019-01-22			2019-02-20			2019-02-21			2019-03-12			2019-03-13		
ALS Sample ID	L2210255-16	L2210255-21	RPD (%)	L2224631-17	L2224631-21	RPD (%)	L2224631-13	L2224631-20	RPD (%)	L2235919-11	L2235919-21	RPD (%)	L2235919-20	L2235919-8	RPD (%)	L2244461-15	L2244461-21	RPD (%)	L2244461-20	L2244461-8	RPD (%)
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)																					
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a
Benzo[g,h,i]perylene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Benzo[k]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Chrysene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Fluorene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Naphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
1-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
2-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Phenanthrene	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a
Pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Quinoline	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Volatile Organic Compounds																					
Benzene	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	<0.00045	<0.00045	n/a	<0.00045	<0.00045	n/a	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	<0.00075	<0.00075	n/a	<0.00075	<0.00075	n/a	-	-	-	-	-	-
Hydrocabrons																					
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH10-19	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	-	-	-	-	-	-	-	-	-	-	-	-
EPH19-32	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	-	-	-	-	-	-	-	-	-	-	-	-
LEPH	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	-	-	-	-	-	-	-	-	-	-	-	-
HEPH	<0.25	<0.25	n/a	<0.25	<0.25	n/a	<0.25	<0.25	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Radiological																					
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)																					
Selenium +4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
All units are in mg/L unless otherwise noted.
"- " = data not available and therefore RPD is not calculated.
n/a = not applicable when both values are less than five times the detection limit.
Red and italicized values exceed the 20% relative percent difference and are more than five times the detection limit.
Red and bold values exceed the 50% relative percent difference and are more than five times the detection limit.

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS04B			WQS05			WQS05			WQS06-US			WQS01			WQS11-US		
Date	30-Apr-2019			30-Apr-2019			25-Aug-2019			4-Oct-2019			5-Nov-2019			6-Nov-2019		
ALS Sample ID	L2266761-14	L2266761-2	RPD (%)	L2266761-15	L2266761-5	RPD (%)	L2336095-5	L2336095-28	RPD (%)	L2361205-4	L2361205-7	RPD (%)	L2378791-16	L2378791-1	RPD (%)	L2378791-17	L2378791-7	RPD (%)
Physical Tests																		
Colour, True	83.4	80.3	3.8	63.6	63.1	0.8	<5.0	<5.0	n/a	<5.0	<5.0	n/a	43.9	42	4.4	29.2	26.7	8.9
Conductivity (µS/cm)	120	120	0.0	124	124	0.0	164	165	0.6	169	168	0.6	129	127	1.6	67.8	67.9	0.1
Hardness (as CaCO ₃)	58.7	57.7	1.7	60.5	57	6.0	-	72.9	-	80.7	81.1	0.5	59.4	62.3	4.8	29.4	29.4	0.0
pH	7.98	7.91	0.9	7.95	7.96	0.1	7.92	7.92	0.0	7.96	7.85	1.4	7.93	7.83	1.3	7.56	7.54	0.3
Total Suspended Solids	9.1	7.3	n/a	6.1	16.5	92.0	-	<3.0	-	<3.0	<3.0	n/a	4.2	5.6	n/a	13	11.2	n/a
Total Dissolved Solids	105	104	1.0	106	112	5.5	-	98	-	99	98	1.0	86	97	12.0	56	62	n/a
Turbidity (NTU)	6.98	7.33	4.9	6.83	6.17	10.2	0.63	0.56	11.8	0.4	0.41	n/a	6.52	5.91	9.8	9.79	9.06	7.7
Acidity (as CaCO ₃)	2	1.9	n/a	1.8	1.8	n/a	1.9	1.8	n/a	<2.0	<2.0	n/a	<2.0	2.1	n/a	2.2	2.1	n/a
Alkalinity, Total (as CaCO ₃)	57.8	58	0.3	52.8	52.7	0.2	46.3	46.6	0.6	45.5	44	3.4	65.2	65.6	0.6	27.4	27.2	0.7
Anions																		
Bromide (Br)	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a	<0.050	<0.050	n/a
Chloride (Cl)	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a	<0.50	<0.50	n/a
Fluoride (F)	0.045	0.045	n/a	0.044	0.045	n/a	0.034	0.034	n/a	0.027	0.027	n/a	0.035	0.031	n/a	0.033	0.028	n/a
Sulphate (SO ₄)	2.67	2.67	0.0	8.14	8.16	0.2	31.9	31.8	0.3	35.8	35.8	0.0	1.63	1.34	19.5	4.81	4.46	7.6
Nutrients																		
Nitrate (as N)	0.0376	0.0392	4.2	0.0322	0.0322	0.0	0.0533	0.0532	0.2	0.0665	0.0659	0.9	<0.0050	<0.0050	n/a	0.0127	0.0185	n/a
Nitrite (as N)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	0.0016	<0.0010	n/a
Total Kjeldahl Nitrogen	0.442	0.421	4.9	0.348	0.375	7.5	<0.050	0.067	n/a	<0.050	<0.050	n/a	0.24	0.224	n/a	0.182	0.184	n/a
Total Nitrogen	0.414	0.397	4.2	0.329	0.4	19.5	-	0.169	-	0.144	0.154	6.7	0.239	0.24	0.4	0.216	0.202	6.7
Ammonia as N	0.0069	<0.0050	n/a	0.0097	<0.0050	n/a	-	<0.0050	-	<0.0050	0.0063	n/a	<0.0050	<0.0050	n/a	<0.0050	<0.0050	n/a
Total Phosphorus (as P)	0.0161	0.0142	12.5	0.0108	0.0112	3.6	-	<0.0020	-	0.0021	0.0027	n/a	0.0076	0.0099	n/a	0.0185	0.0196	5.8
Dissolved Orthophosphate (as P)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Carbon																		
Total Organic Carbon	17.4	16.9	2.9	14.5	14.3	1.4	-	1.24	-	1.4	1.63	n/a	9.67	9.8	1.3	6.68	7.47	11.2
Dissolved Organic Carbon	17.8	17.5	1.7	15.2	15.4	1.3	-	1.7	-	1.6	1.54	n/a	10.3	10.2	1.0	6.62	6.93	4.6
Total Inorganic Carbon	-	-	-	-	-	-	10.6	11	3.7	10.7	10.9	1.9	-	-	-	-	-	-
Dissolved Inorganic Carbon	-	-	-	-	-	-	10.4	10.8	3.8	10.9	11.1	1.8	-	-	-	-	-	-
Cyanide																		
Cyanide, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Weak Acid Dissociable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Free	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																		
Aluminum (Al)	0.97	0.479	67.8	0.551	0.417	27.7	-	0.0304	-	0.0239	0.0243	1.7	0.3	0.351	15.7	0.495	0.358	32.1
Antimony (Sb)	0.00011	0.00012	n/a	<0.00010	<0.00010	n/a	-	0.00012	-	<0.00010	<0.00010	n/a	<0.00010	0.0001	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00067	0.00059	12.7	0.00049	0.00048	2.1	-	0.00018	-	0.0002	0.00021	n/a	0.00053	0.00056	5.5	0.00047	0.0004	n/a
Barium (Ba)	0.0331	0.0313	5.6	0.0469	0.0454	3.3	-	0.0553	-	0.0697	0.069	1.0	0.0326	0.0328	0.6	0.0334	0.0306	8.8
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	-	<0.00010	-	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	-	<0.000050	-	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	0.014	0.013	n/a	<0.010	<0.010	n/a	-	<0.010	-	<0.010	<0.010	n/a	0.012	0.011	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	0.0000071	8.10E-06	n/a	1.04E-05	0.0000087	n/a	-	0.0000204	-	0.0000271	0.00003	10.2	<0.0000050	<0.0000050	n/a	0.0000129	0.0000091	n/a
Calcium (Ca)	20.4	19.2	6.1	19.4	19.1	1.6	-	23.1	-	24.1	24.9	3.3	18.8	18.4	2.2	9.29	9.1	2.1
Chromium (Cr)	0.00119	0.00086	32.2	0.00078	0.00066	16.7	-	0.00013	-	<0.00010	<0.00010	n/a	0.00087	0.00066	27.5	0.00057	0.00041	32.7
Cobalt (Co)	0.00027	0.00024	n/a	0.00021	0.00021	n/a	-	<0.00010	-	<0.00010	<0.00010	n/a	0.00014	0.00015	n/a	0.0003	0.0002	n/a
Copper (Cu)	0.00511	0.00504	1.4	0.00481	0.00463	3.8	-	0.00147	-	0.00232	0.00229	n/a	0.00255	0.00266	4.2	0.00197	0.0018	n/a
Iron (Fe)	0.618	0.472	26.8	0.428	0.424	0.9	-	0.041	-	0.017	0.015	n/a	0.227	0.261	13.9	0.618	0.461	29.1
Lead (Pb)	0.000121	0.00011	n/a	9.10E-05	0.000104	n/a	-	<0.000050	-	<0.000050	<0.000050	n/a	0.000051	0.000056	n/a	0.000186	0.000144	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	-	<0.0010	-	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	4.08	4	2.0	4.11	3.97	3.5	-	3.76	-	3.48	3.46	0.6	3.63	3.56	1.9	1.94	1.87	3.7
Manganese (Mn)	0.015	0.0137	9.1	0.0109	0.0112	2.7	-	0.0038	-	0.00186	0.00165	12.0	0.0075	0.00942	22.7	0.05	0.0329	41.3
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	-	<0.0000050	-	<0.0000050	<0.0000050	n/a	<0.0000050	0.0000051	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000132	0.000111	17.3	0.000285	0.000299	4.8	-	0.0246	-	0.000509	0.000482	5.4	0.000081	0.000103	n/a	0.000324	0.000298	8.4
Nickel (Ni)	0.00102	0.00096	n/a	0.00089	0.0009	n/a	-	<0.00050	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	0.00077	0.00061	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	-	<0.050	-	<0.050	<0.050	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.367	0.277	28.0	0.385	0.356	7.8	-	0.366	-	0.355	0.358	0.8	0.182	0.182	n/a	0.409	0.38	7.4
Selenium (Se)	0.00007	0.000103	n/a	9.70E-05	0.000071	n/a	-	0.000127	-	0.000129	0.000084	n/a	0.000062	0.000069	n/a	0.000054	0.000067	n/a
Silicon (Si)	5.76	4.75	19.2	4.53	4.03	11.7	-	2.99	-	2.76	2.78	0.7	4.09	4.26	4.1	3.54	3.45	2.6

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS04B			WQS05			WQS05			WQS06-US			WQS01			WQS11-US		
Date	30-Apr-2019			30-Apr-2019			25-Aug-2019			4-Oct-2019			5-Nov-2019			6-Nov-2019		
ALS Sample ID	L2266761-14	L2266761-2	RPD (%)	L2266761-15	L2266761-5	RPD (%)	L2336095-5	L2336095-28	RPD (%)	L2361205-4	L2361205-7	RPD (%)	L2378791-16	L2378791-1	RPD (%)	L2378791-17	L2378791-7	RPD (%)
Total Metals																		
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	<0.000010	-	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	3.4	3.3	n/a	3.3	3	n/a	-	2.23	-	1.95	1.92	1.6	3	3	n/a	<2.0	<2.0	n/a
Strontium (Sr)	0.0928	0.0898	3.3	0.0815	0.08	1.9	-	0.0835	-	0.0811	0.0767	5.6	0.0891	0.0916	2.8	0.0439	0.0452	2.9
Sulphur (S)	1.23	1.21	1.6	3.11	2.95	5.3	-	11.4	-	12	11.8	1.7	<0.50	<0.50	n/a	1.21	1.47	n/a
Thallium (Tl)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	<0.000010	-	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	-	<0.00010	-	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	<0.033	0.012	n/a	<0.016	0.011	n/a	-	0.00064	-	<0.00030	<0.00030	n/a	<0.010	<0.010	n/a	0.013	<0.010	n/a
Uranium (U)	0.000115	0.000097	17.0	0.000081	0.000069	16.0	-	0.000039	-	0.000058	0.000054	7.1	0.000107	0.000112	4.6	0.000041	0.000039	n/a
Vanadium (V)	0.00236	0.0016	n/a	0.00145	0.00123	n/a	-	<0.00050	-	<0.00050	<0.00050	n/a	0.00139	0.0015	n/a	0.00159	0.00118	n/a
Zinc (Zn)	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	-	<0.0030	-	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a	<0.0030	<0.0030	n/a
Dissolved Metals																		
Aluminum (Al)	0.157	0.155	1.3	0.121	0.121	0.0	-	0.0087	-	0.0138	0.0138	0.0	0.0944	0.107	12.5	0.0765	0.083	8.2
Antimony (Sb)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	-	<0.00010	-	<0.00010	<0.00010	n/a	0.0001	<0.00010	n/a	<0.00010	<0.00010	n/a
Arsenic (As)	0.00049	0.00045	n/a	0.00036	0.00036	n/a	-	0.00017	-	0.00016	0.00015	n/a	0.00046	0.00049	n/a	0.00023	0.00026	n/a
Barium (Ba)	0.0292	0.0275	6.0	0.0437	0.0442	1.1	-	0.0599	-	0.0768	0.0779	1.4	0.0291	0.0302	3.7	0.0252	0.0255	1.2
Beryllium (Be)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	-	<0.00010	-	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Bismuth (Bi)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	-	<0.000050	-	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Boron (B)	0.012	0.012	n/a	<0.010	<0.010	n/a	-	<0.010	-	<0.010	<0.010	n/a	0.011	0.011	n/a	<0.010	<0.010	n/a
Cadmium (Cd)	0.0000059	5.90E-06	n/a	5.80E-06	0.0000075	n/a	-	0.0000214	-	0.0000243	0.0000237	n/a	0.0000061	0.0000057	n/a	<0.0000050	0.0000055	n/a
Calcium (Ca)	17.4	17.2	1.2	18.2	16.6	9.2	-	23.3	-	25.6	25.8	0.8	17.9	19	6.0	8.94	8.86	0.9
Chromium (Cr)	0.00051	0.00049	n/a	0.00033	0.00034	3.0	-	0.00011	-	0.00017	0.00019	n/a	0.00043	0.00043	n/a	0.00015	0.00017	n/a
Cobalt (Co)	<0.00010	0.00011	n/a	<0.00010	<0.00010	n/a	-	<0.00010	-	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Copper (Cu)	0.00478	0.00465	2.8	0.00431	0.00442	2.5	-	0.00134	-	0.00176	0.00184	4.4	0.00227	0.00231	n/a	0.00113	0.00139	n/a
Iron (Fe)	0.173	0.161	7.2	0.142	0.141	0.7	-	<0.010	-	<0.010	<0.010	n/a	0.086	0.089	n/a	0.106	0.11	n/a
Lead (Pb)	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	-	<0.000050	-	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a
Lithium (Li)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	-	<0.0010	-	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Magnesium (Mg)	3.73	3.61	3.3	3.66	3.81	4.0	-	3.57	-	4.08	4.07	0.2	3.56	3.62	1.7	1.73	1.76	1.7
Manganese (Mn)	0.00632	0.00603	4.7	0.00519	0.00497	4.3	-	0.00188	-	0.00111	0.0011	0.9	0.00165	0.00168	1.8	0.0057	0.00592	3.8
Mercury (Hg)	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	-	<0.0000050	-	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a
Molybdenum (Mo)	0.000108	0.0001	7.7	0.000254	0.000236	n/a	-	0.000828	-	0.000493	0.000545	10.0	0.000077	0.000079	n/a	0.000263	0.000295	11.5
Nickel (Ni)	0.0006	0.00058	n/a	0.0006	0.00057	n/a	-	<0.00050	-	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a	<0.00050	<0.00050	n/a
Phosphorus (P)	<0.30	<0.30	n/a	<0.30	<0.30	n/a	-	<0.050	-	<0.050	<0.050	n/a	<0.30	<0.30	n/a	<0.30	<0.30	n/a
Potassium (K)	0.261	0.248	5.1	0.329	0.337	2.4	-	0.355	-	0.401	0.409	2.0	0.158	0.154	n/a	0.354	0.356	0.6
Selenium (Se)	0.00009	6.20E-05	n/a	6.20E-05	0.000068	n/a	-	0.00011	-	0.000111	0.000078	n/a	0.000058	0.000059	n/a	<0.000050	<0.000050	n/a
Silicon (Si)	3.85	3.72	3.4	3.36	3.31	1.5	-	2.74	-	2.83	2.78	1.8	4	4.06	1.5	3.11	3.1	0.3
Silver (Ag)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	<0.000010	-	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Sodium (Na)	3.3	3.2	n/a	3.1	3	n/a	-	2.21	-	2.2	2.2	0.0	3.2	3.1	n/a	<2.0	<2.0	n/a
Strontium (Sr)	0.0767	0.0763	0.5	0.0702	0.0652	7.4	-	0.0869	-	0.081	0.0835	3.0	0.0974	0.0973	0.1	0.0466	0.0457	2.0
Sulphur (S)	0.86	0.85	1.2	2.61	2.57	1.5	-	10.8	-	11.9	11.3	5.2	0.62	0.54	n/a	1.42	1.52	n/a
Thallium (Tl)	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	<0.000010	-	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a
Tin (Sn)	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	-	0.00459	-	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a	<0.00010	<0.00010	n/a
Titanium (Ti)	<0.010	<0.010	n/a	<0.010	<0.010	n/a	-	<0.00030	-	<0.00030	<0.00030	n/a	<0.010	<0.010	n/a	<0.010	<0.010	n/a
Uranium (U)	0.000097	8.90E-05	8.6	7.10E-05	0.000065	8.8	-	0.000039	-	0.000062	0.000059	5.0	0.000095	0.000105	10.0	0.00003	0.000031	n/a
Vanadium (V)	0.00083	0.00078	n/a	0.00051	0.00051	n/a	-	<0.00050	-	<0.00050	<0.00050	n/a	0.001	0.00096	n/a	<0.00050	<0.00050	n/a
Zinc (Zn)	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	-	0.0066	-	0.0019	0.0019	n/a	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a
Aggregate Organics																		
Phenols (4AAP)	0.0032	0.0012	n/a	<0.0010	0.0023	n/a	-	<0.0010	-	<0.0010	<0.0010	n/a	<0.0010	<0.0010	n/a	0.002	0.0022	n/a
BOD	-	-	-	-	-	-	<2.0	<2.0	n/a	<2.0	<2.0	n/a	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	<20	-	<20	<20	n/a	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons																		
Acenaphthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Acenaphthylene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Acridine	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Anthracene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Benz[a]anthracene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Benzo[a]pyrene	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	-	-	-	-	-	-

Appendix 8-D. Water Quality Relative Percent Difference Results, Tenas Project, 2017 to 2019

Site	WQS04B			WQS05			WQS05			WQS06-US			WQS01			WQS11-US		
Date	30-Apr-2019			30-Apr-2019			25-Aug-2019			4-Oct-2019			5-Nov-2019			6-Nov-2019		
ALS Sample ID	L2266761-14	L2266761-2	RPD (%)	L2266761-15	L2266761-5	RPD (%)	L2336095-5	L2336095-28	RPD (%)	L2361205-4	L2361205-7	RPD (%)	L2378791-16	L2378791-1	RPD (%)	L2378791-17	L2378791-7	RPD (%)
Polycyclic Aromatic Hydrocarbons (<i>cont'd</i>)																		
Benzo[b]fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[b,j]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Benzo[b,j,k]fluoranthene	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	<0.000015	<0.000015	n/a	-	-	-	-	-	-
Benzo[g,h,i]perylene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Benzo[k]fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Chrysene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Dibenz[a,h]anthracene	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	<0.0000050	<0.0000050	n/a	-	-	-	-	-	-
Fluoranthene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Fluorene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Indeno[1,2,3-c,d]pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Naphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	-	-	-	-	-	-
1-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	-	-	-	-	-	-
2-Methylnaphthalene	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	-	-	-	-	-	-
Phenanthrene	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	<0.000020	<0.000020	n/a	-	-	-	-	-	-
Pyrene	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	<0.000010	<0.000010	n/a	-	-	-	-	-	-
Quinoline	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	<0.000050	<0.000050	n/a	-	-	-	-	-	-
Volatile Organic Compounds																		
Benzene	-	-	-	-	-	-	-	<0.00050	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	<0.00050	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	-	-	-	-	-	-	-	<0.00050	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Styrene	-	-	-	-	-	-	-	<0.00050	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	<0.00045	-	<0.00045	<0.00045	n/a	-	-	-	-	-	-
ortho-Xylene	-	-	-	-	-	-	-	<0.00050	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-
meta- & para-Xylene	-	-	-	-	-	-	-	<0.00050	-	<0.00050	<0.00050	n/a	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocabrons																		
Volatile Hydrocarbons (VH6-10)	-	-	-	-	-	-	-	<0.10	-	<0.10	<0.10	n/a	-	-	-	-	-	-
VPH (C6-C10)	-	-	-	-	-	-	-	<0.10	-	<0.10	<0.10	n/a	-	-	-	-	-	-
EPH10-19	-	-	-	-	-	-	-	<0.25	-	<0.25	<0.25	n/a	-	-	-	-	-	-
EPH19-32	-	-	-	-	-	-	-	<0.25	-	<0.25	<0.25	n/a	-	-	-	-	-	-
LEPH	-	-	-	-	-	-	-	<0.25	-	<0.25	<0.25	n/a	-	-	-	-	-	-
HEPH	-	-	-	-	-	-	-	<0.25	-	<0.25	<0.25	n/a	-	-	-	-	-	-
Radiological																		
Ra-226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Se Species (µg/L)																		
Selenium +4	<0.10	<0.10	n/a	<0.10	<0.10	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Selenium +6	<0.10	<0.10	n/a	<0.10	<0.10	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Selenocyanate	<0.10	<0.10	n/a	<0.10	<0.10	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Se Species	<0.20	<0.20	n/a	<0.20	<0.20	n/a	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

All units are in mg/L unless otherwise noted.

"-" = data not available and therefore RPD is not calculated.

n/a = not applicable when both values are less than five times the detection limit.

Red and italicized values exceed the 20% relative percent difference and are more than five times the detection limit.

Red and bold values exceed the 50% relative percent difference and are more than five times the detection limit.

***Appendix 8-E** **Water Quality Historical Data, Tenas Project,
1974 to 2012***

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	400187	400434	400435	400434	400435	400187	400434	400435	400434	400434	400435	400435	400187	400434
Date	20-Mar-1974	4-Jun-1974	25-Jun-1974	25-Jun-1974	10-Jul-1974	10-Jul-1974	17-Sep-1974	24-Sep-1974	24-Sep-1974	21-May-1975	21-May-1975	21-May-1975	21-May-1975	2-Jun-1975	25-Jun-1975
Client Sample ID	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE
Time	8:30	17:05	11:45	11:40	10:10	10:00	22:15	15:30	15:40	9:15	9:20	9:20	9:30	17:45	10:30
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	8.50	9.00	7.50	8.00	-	10.00	10.00	6.00	-	6.00	-	7.00	9.00
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	10.6	10.7	-	-	-	11.0	-	11.2	-	10.2	11.5
Physical Tests															
Colour, True	5.00	30.0	-	-	-	-	5.00	-	-	30.0	-	30.0	-	60.0	15.0
Colour (TAC)	4.00	32.0	-	-	-	-	1.000	-	-	33.0	-	32.0	-	23.0	12.0
Conductivity (µS/cm)	139	64.0	49.0	49.0	50.0	50.0	53.0	65.0	50.0	61.5	-	61.0	-	62.0	54.5
Hardness (as CaCO ₃)	63.2	31.0	-	-	-	-	23.5	-	-	28.6	-	28.8	-	26.7	78.7
pH	7.90	-	-	-	-	-	7.50	-	-	7.50	-	7.40	-	7.65	7.50
Turbidity (NTU)	2.60	10.00	-	-	-	-	12.0	-	-	17.0	-	16.0	-	180	21.0
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	64.5	-	-	-	-	-	22.4	-	-	28.0	-	27.8	-	28.5	22.5
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	0.500	-	-	-	-	-	0.500	-	-	-	-	-	-	0.700	-
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	6.10	-	-	-	-	-	5.00	-	-	5.00	-	5.00	-	5.00	-
Nutrients															
Total Nitrogen	0.140	-	-	-	-	-	0.1000	-	-	-	-	-	-	0.320	0.0500
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	-	-	-	-	-	-	0.1000	-	-	0.250	-	0.0800	-	0.290	0.0200
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	0.0200	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	-	-	-	-	-	-	0.00500	-	-	0.0140	-	0.01000	-	0.01000	0.0160
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	0.0900	-	-	-	-	-	0.0200	-	-	0.0300	-	0.0200	-	0.0300	0.0300
Nitrate+ Nitrite, Dissolved	0.0900	-	-	-	-	-	0.0200	-	-	0.0300	-	0.0200	-	0.0300	0.0300
Nitrite, Dissolved (as N)	0.00500	-	-	-	-	-	0.00500	-	-	0.00500	-	0.00500	-	0.00500	0.00500
Total Organic Nitrogen	0.0300	-	-	-	-	-	0.1000	-	-	0.240	-	0.0700	-	0.280	0.01000
Total Phosphorus (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Orthophosphate (as P)	0.00300	-	-	-	-	-	-	-	-	0.00400	-	0.00400	-	-	0.00400
Silica, Dissolved	8.10	-	-	-	-	-	3.10	-	-	-	-	-	-	5.20	-
Carbon															
Total Organic Carbon	1.000	-	-	-	-	-	1.000	-	-	-	-	-	-	5.00	2.00
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	16.0	-	-	-	-	-	4.00	-	-	-	-	-	-	6.00	-
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187
Date	25-Jun-1975	17-Jul-1975	7-Oct-1975	11-Feb-1985	11-Mar-1985	17-Apr-1985	13-May-1985	12-Jun-1985	9-Jul-1985	13-Aug-1985	10-Sep-1985	8-Oct-1985	5-Nov-1985	10-Dec-1985	8-Jan-1986
Client Sample ID	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE
Time	10:45	16:30	12:00	11:00	-	13:45	8:00	14:30	10:30	14:00	11:10	9:00	8:30	7:00	13:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	9.00	-	7.00	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	11.7	-	7.20	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	20.0	5.00	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour (TAC)	14.0	5.00	3.00	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	52.0	60.0	57.5	131	125	106	89.0	54.0	51.0	55.0	79.0	98.0	109	124	126
Hardness (as CaCO ₃)	22.6	27.7	24.4	52.3	49.8	50.0	42.2	25.0	22.3	24.9	34.4	41.0	52.3	52.1	60.3
pH	7.40	7.50	7.40	7.80	7.80	7.60	7.70	7.30	7.50	7.30	7.80	7.80	7.60	7.40	7.50
Turbidity (NTU)	19.0	15.0	1.10	1.10	2.60	9.30	25.0	10.00	7.50	4.60	1.90	1.000	1.10	1.000	1.000
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	22.0	26.7	24.3	62.2	59.5	48.1	43.7	25.9	23.8	25.2	36.5	45.0	50.1	57.3	58.5
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	-	0.500	0.500	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	5.00	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
Total Nitrogen	0.0400	0.0500	0.1000	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	0.0200	0.0300	0.0800	0.0400	0.0300	0.250	0.220	0.0800	0.120	0.0400	0.0200	0.0400	0.0600	0.0500	0.01000
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	0.0110	0.00500	0.00900	0.00500	0.00500	0.00500	0.0170	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	0.0200	0.0200	0.0200	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	0.0200	0.0200	0.0200	0.1000	0.0900	0.120	0.0700	0.0300	0.0200	0.0200	0.0200	0.0300	0.0500	0.0800	0.0900
Nitrite, Dissolved (as N)	0.00500	0.00500	0.00500	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Nitrogen	0.01000	0.0300	0.0700	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	-	-	-	0.00400	0.00500	0.01000	0.00500	0.00400	0.00300	0.00300	0.00300	0.00300	0.00400	0.00400	0.00400
Dissolved Orthophosphate (as P)	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300
Silica, Dissolved	-	-	3.40	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	2.00	-	2.00	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	-	-	4.00	16.0	16.0	12.0	12.0	6.00	5.00	5.00	9.00	11.0	13.0	15.0	16.0
Total Carbon	-	-	-	16.0	16.0	20.0	18.0	10.00	6.00	6.00	9.00	11.0	13.0	15.0	16.0
Total Metals															
Aluminum (Al)	-	-	-	0.0400	0.0600	0.720	1.57	1.20	0.730	0.240	0.0800	0.0400	0.0800	0.350	0.0400
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187
Date	11-Feb-1986	19-Mar-1986	7-Apr-1986	7-May-1986	2-Jun-1986	8-Jul-1986	5-Aug-1986	4-Sep-1986	4-Oct-1986	9-Oct-1986	12-Nov-1986	10-Dec-1986	12-Jan-1987	18-Feb-1987	26-Mar-1987
Client Sample ID	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE
Time	12:00	9:30	14:00	9:00	9:30	14:00	10:00	9:30	18:00	8:30	10:30	9:30	9:45	9:15	8:15
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
In Situ															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	-	-	-	-	-	-	-	-	-	-	5.00	5.00	5.00
Colour (TAC)	1.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	135	128	125	79.0	55.0	53.0	53.0	46.0	63.0	62.0	95.0	119	126	123	134
Hardness (as CaCO ₃)	62.3	55.6	57.0	38.3	22.4	25.0	24.2	22.1	-	25.4	38.9	53.9	55.9	57.8	64.4
pH	7.40	7.80	7.80	7.40	7.30	7.40	7.60	7.30	-	7.20	7.70	7.80	7.80	7.80	7.80
Turbidity (NTU)	1.10	10.00	16.0	35.0	23.0	15.0	13.0	180	-	50.0	1.50	1.000	1.30	1.50	6.10
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	62.0	60.3	56.5	36.7	24.4	24.8	23.3	20.2	-	26.6	41.3	54.4	56.5	57.7	60.0
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.500	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	0.0300	0.0500	0.130	0.320	0.170	0.0500	0.0400	0.170	-	0.0600	0.0500	0.0400	0.0600	0.0500	0.0700
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	0.00800	0.00700	0.00800	0.00500	0.00600	0.00500	0.00500	0.00500	-	0.0110	0.00500	0.00500	0.00500	0.00500	0.00500
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	0.0900	0.1000	0.0800	0.0600	0.0400	0.0200	0.0200	0.0200	-	0.0400	0.0500	0.1000	0.110	0.0900	0.120
Nitrite, Dissolved (as N)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	0.00400	0.00700	0.00600	0.00700	0.00600	0.00300	0.00600	0.00300	-	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300
Dissolved Orthophosphate (as P)	0.00300	0.00500	0.00300	0.00300	0.00300	0.00200	0.00200	0.00500	-	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200
Silica, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	16.0	16.0	14.0	9.00	7.00	5.00	6.00	5.00	-	7.00	11.0	14.0	15.0	15.0	16.0
Total Carbon	17.0	16.0	17.0	20.0	12.0	8.00	6.00	5.00	-	7.00	11.0	15.0	15.0	15.0	16.0
Total Metals															
Aluminum (Al)	0.0200	0.350	1.000	2.61	1.69	0.960	1.07	14.7	-	2.67	0.0800	0.0300	0.0700	0.0600	0.270
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.250	-	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	400187	400187	400187	400187	400434	400434	400434	400435	400435	400435	400187	400434	400434	400435
Date	21-Apr-1987	19-May-1987	17-Jun-1987	14-Jul-1987	11-Aug-1987	16-Aug-1987	23-Aug-1987	31-Aug-1987	16-Aug-1987	23-Aug-1987	31-Aug-1987	8-Sep-1987	8-Sep-1987	14-Sep-1987	8-Sep-1987
Client Sample ID	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS
Time	9:30	10:15	13:30	11:50	11:00	15:00	12:40	16:00	15:30	13:30	16:30	11:30	18:30	18:15	18:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	50.0	40.0	10.00	5.00	5.00	-	-	-	-	-	-	5.00	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	112	77.0	65.0	58.0	60.0	53.0	58.0	55.0	53.0	59.0	56.0	66.0	53.0	55.0	54.0
Hardness (as CaCO ₃)	52.6	36.7	31.4	27.5	26.2	-	-	-	-	-	-	28.5	-	-	-
pH	7.70	7.40	7.30	7.30	7.20	7.30	6.90	7.80	7.60	7.20	7.70	6.90	7.70	7.60	7.70
Turbidity (NTU)	14.0	6.90	4.90	5.80	10.00	3.20	-	4.50	3.20	-	4.30	9.30	2.20	2.10	2.00
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	49.5	35.6	29.0	24.8	26.3	-	-	-	-	-	-	27.9	-	-	-
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride (F)	-	-	0.1000	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	0.200	0.140	0.0600	0.0400	0.0300	0.0400	-	0.160	0.0400	-	0.0900	0.0300	0.0500	0.0600	0.0600
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00800	0.00500	0.00500	0.00800	0.00500	0.00500	0.0310	0.00500
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	0.130	0.0600	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200
Nitrite, Dissolved (as N)	-	-	-	-	-	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	-	0.00500	0.00500	0.00500
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	0.00600	0.00400	0.00300	0.00300	0.00300	0.00300	0.00400	0.00700	0.00300	0.00500	0.00700	0.00500	0.00500	0.00700	0.00600
Dissolved Orthophosphate (as P)	0.00250	0.00200	0.00200	0.00250	0.00200	0.00200	0.00300	0.00300	0.00450	0.00300	0.00300	0.00200	0.00300	0.00300	0.00300
Silica, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	12.0	9.00	8.00	6.00	6.00	-	-	-	-	-	-	6.00	-	-	-
Total Carbon	20.0	14.0	9.00	6.00	7.00	-	-	-	-	-	-	6.00	-	-	-
Total Metals															
Aluminum (Al)	0.890	0.560	0.460	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	0.001000	0.001000	0.001000	0.001000	0.001000	-	-	-	-	-	-	0.001000	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400187	400187	400187	400187	400434	400434	400434	400435	400435	400435	400434	400434	400435	400435
Date	14-Sep-1987	7-Oct-1987	16-Nov-1987	8-Feb-1988	8-Mar-1988	16-Aug-1988	22-Aug-1988	29-Aug-1988	16-Aug-1988	22-Aug-1988	29-Aug-1988	6-Sep-1988	12-Sep-1988	6-Sep-1988	12-Sep-1988
Client Sample ID	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS
Time	17:30	11:00	11:30	9:00	9:00	13:00	14:30	12:45	13:30	14:00	12:15	12:45	12:00	12:15	11:30
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	5.00	15.0	5.00	12.0	-	-	-	-	-	-	-	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	54.0	81.0	83.0	127	130	-	-	52.0	-	-	52.0	53.0	56.0	55.0	56.0
Hardness (as CaCO ₃)	-	34.9	40.0	57.1	61.2	-	-	-	-	-	-	-	-	-	-
pH	7.70	7.40	7.50	7.70	7.80	7.10	7.70	7.80	7.60	7.80	7.70	7.60	7.60	7.60	7.60
Turbidity (NTU)	1.20	5.60	1.80	1.000	1.40	2.00	2.50	1.50	2.00	2.00	1.50	2.30	1.000	2.10	1.000
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	-	35.3	38.3	57.3	59.3	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	0.0400	0.0800	0.110	0.01000	0.0500	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00600
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	0.0200	0.0200	0.0400	0.110	0.0900	-	-	-	-	-	-	-	-	-	-
Nitrite, Dissolved (as N)	0.00500	-	-	-	-	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	0.00500	0.00300	0.00500	0.00300	0.00300	-	-	-	-	-	-	-	-	-	-
Dissolved Orthophosphate (as P)	0.00300	0.00200	0.00250	0.00250	0.00200	-	-	-	-	-	-	-	-	-	-
Silica, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	-	9.00	9.00	15.0	16.0	-	-	-	-	-	-	-	-	-	-
Total Carbon	-	9.00	13.0	15.0	16.0	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	-	-	-	0.0400	0.0700	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	0.001000	0.001000	0.001000	0.001000	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400434	400434	400435	400435	400434	400434	400434	400435	400435	400435	400435	400434	400435	400434	400434
Date	24-Jul-1989	31-Jul-1989	24-Jul-1989	31-Jul-1989	8-Aug-1989	14-Aug-1989	21-Aug-1989	8-Aug-1989	14-Aug-1989	21-Aug-1989	26-Jun-1990	26-Jun-1990	3-Jul-1990	9-Jul-1990	18-Jul-1990
Client Sample ID	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE
Time	12:12	10:00	13:00	9:40	10:38	-	-	11:05	-	11:50	14:28	14:46	14:02	13:12	12:48
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	8.00	7.70	7.80	7.60	8.00	7.50	7.80	7.90	7.10	7.80	7.60	7.70	7.50	7.50	7.70
Turbidity (NTU)	2.60	3.20	2.80	3.00	2.50	3.70	2.70	2.60	3.70	3.00	9.60	9.80	12.0	7.00	3.20
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00700	0.00500	0.00500	0.00700	0.00500	0.00500	0.00500	0.00600	0.00500
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite, Dissolved (as N)	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00300
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400434	400435	400435	400435	400435	400434	400434	400434	400434	400434	400434	400435	400435	400435	400435
Date	23-Jul-1990	3-Jul-1990	9-Jul-1990	18-Jul-1990	23-Jul-1990	16-Jul-1991	16-Jul-1991	22-Jul-1991	22-Jul-1991	31-Jul-1991	31-Jul-1991	16-Jul-1991	16-Jul-1991	22-Jul-1991	22-Jul-1991
Client Sample ID	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS
Time	12:10	14:25	13:28	11:45	12:28	-	15:50	-	15:45	-	12:15	-	15:20	-	15:15
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	10.8	-	11.5	-	10.5	-	10.5	-	12.0	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	11.0	-	9.10	-	10.4	-	11.3	-	10.1	-
Physical Tests															
Colour, True	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	7.80	7.60	7.70	7.80	7.60	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	3.00	12.0	7.00	3.00	2.50	-	4.00	-	3.00	-	1.60	-	3.70	-	2.80
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	0.00500	0.00500	0.00500	0.00500	0.00500	-	0.00500	-	0.00500	-	0.00500	-	0.00500	-	0.00500
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite, Dissolved (as N)	0.00500	0.00500	0.00500	0.00500	0.00500	-	0.00500	-	0.00500	-	0.00500	-	0.00500	-	0.00500
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	0.00300	-	-	0.00300	0.00300	-	-	-	-	-	-	-	-	-	-
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400435	400434	400434	400434	400435	400435	400435	400435	400435	400434	400434	400435	400435	400434	400434
Date	31-Jul-1991	31-Jul-1991	6-Aug-1991	6-Aug-1991	15-Aug-1991	6-Aug-1991	6-Aug-1991	6-Aug-1991	15-Aug-1991	15-Aug-1991	20-Jul-1992	27-Jul-1992	20-Jul-1992	27-Jul-1992	4-Aug-1992	10-Aug-1992
Client Sample ID	BULKLEY R.	BULKLEY R.	BULKLEY R	BULKLEY R	BULKLEY R	BULKLEY R.	BULKLEY R.	BULKLEY R.	BULKLEY R.	BULKLEY R.	BULKLEY R	BULKLEY R	BULKLEY R.	BULKLEY R.	BULKLEY R	BULKLEY R
	IDZ AT	IDZ AT	UPSTREAM	UPSTREAM	UPSTREAM	IDZ AT	IDZ AT	IDZ AT	IDZ AT	IDZ AT	UPSTREAM	UPSTREAM	IDZ AT	IDZ AT	UPSTREAM	UPSTREAM
	SMITHERS	SMITHERS	FROM	FROM	FROM	SMITHERS	SMITHERS	SMITHERS	SMITHERS	SMITHERS	FROM	FROM	SMITHERS	SMITHERS	FROM	FROM
			SMITHERS SEWAGE	SMITHERS SEWAGE	SMITHERS SEWAGE						SMITHERS SEWAGE	SMITHERS SEWAGE			SMITHERS SEWAGE	SMITHERS SEWAGE
Time	-	11:25	-	12:20	12:25	-	12:00	-	11:55	15:06	13:59	14:33	14:15	13:30	14:30	
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
In Situ																
Temperature (°C)	10.4	-	10.4	-	-	10.3	-	13.7	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	11.4	-	10.7	-	-	10.6	-	9.40	-	-	-	-	-	-	-	-
Physical Tests																
Colour, True	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	7.60	-	-	-	7.50	7.60	7.70	7.70	7.60	7.40	7.70	
Turbidity (NTU)	-	1.50	-	1.70	4.40	-	2.00	-	4.10	2.10	1.30	2.70	1.30	0.900	0.900	
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions																
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	-	0.00500	-	0.00500	0.00500	-	0.00500	-	0.00500	0.00500	0.00500	0.00500	0.00500	0.0210	0.00500	
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite, Dissolved (as N)	-	0.00500	-	0.00500	0.00500	-	0.00500	-	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silica, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon																
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400435	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125
Date	4-Aug-1992	10-Aug-1992	3-Oct-2001	10-Oct-2001	10-Oct-2001	22-Oct-2001	22-Oct-2001	29-Oct-2001	29-Oct-2001	8-Aug-2002	8-Aug-2002	14-Aug-2002	14-Aug-2002	20-Aug-2002	20-Aug-2002
Client Sample ID	BULKLEY R.	BULKLEY R.	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY
	IDZ AT	IDZ AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT
	SMITHERS	SMITHERS	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA
			WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM
			INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE
Time	13:50	15:11	14:30	14:00	14:10	12:30	12:40	12:00	12:10	-	16:00	-	16:00	-	16:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
In Situ															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	3.00	3.00	-	8.00	-	3.00	-	-	5.00	-	5.00	-	5.00
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	50.0	54.0	-	56.0	-	58.0	-	-	52.0	-	-	-	-
Hardness (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	7.70	7.80	7.43	7.65	-	7.45	-	7.75	-	-	-	-	-	-	-
Turbidity (NTU)	0.900	1.80	1.53	0.540	-	0.680	-	0.810	-	-	3.77	-	4.28	-	1.14
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	0.0700	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	0.00700	0.00500	-	-	-	-	-	-	-	-	0.00500	-	-	-	-
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	0.001000	-	0.00300	-	0.00500	-	-	0.0270	-	-	-	-
Nitrate+ Nitrite, Dissolved	-	-	0.00200	0.00300	-	0.00500	-	0.00700	-	-	0.0290	-	-	-	-
Nitrite, Dissolved (as N)	0.00500	0.00500	0.00200	0.00200	-	0.00200	-	0.00200	-	-	0.00200	-	-	-	-
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	-	-	-	0.001000	-	-	-	-
Silica, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	-	-	0.0599	0.0600	-	0.0600	-	0.0600	-	-	0.0878	-	-	-	-
Antimony (Sb)	-	-	0.0000230	0.0600	-	0.0600	-	0.0600	-	-	0.0000210	-	-	-	-
Arsenic (As)	-	-	1.00E-04	0.0600	-	0.0600	-	0.0600	-	-	0.000200	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125
Date	27-Aug-2002	27-Aug-2002	3-Sep-2002	3-Sep-2002	7-Oct-2002	7-Oct-2002	15-Oct-2002	21-Oct-2002	28-Oct-2002	28-Oct-2002	3-Nov-2002	3-Nov-2002	12-Nov-2002	12-Nov-2002	18-Nov-2002
Client Sample ID	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY
	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT
	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA
	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM
	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE
Time	-	16:00	-	16:00	-	16:00	-	-	-	16:00	-	16:00	-	16:00	10:59
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	5.00	-	5.00	-	5.00	-	-	-	5.00	-	5.00	-	5.00	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	51.0	-	-	-	58.0	-	-	-	-	-
Hardness (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	7.70	-	-	-	7.70	-	-	-	-	-
Turbidity (NTU)	-	1.02	-	1.29	-	17.9	-	-	-	0.780	-	0.560	-	0.500	-
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	-	-	-	-	-	-	-	-	-	0.500	-	-	-	-	-
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
Total Nitrogen	-	-	-	-	-	0.210	-	-	-	0.0600	-	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	-	-	-	-	-	0.00900	-	-	-	0.00500	-	-	-	-	-
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	-	-	0.00600	-	-	-	0.0130	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	-	-	-	-	-	0.00600	-	-	-	0.0130	-	-	-	-	-
Nitrite, Dissolved (as N)	-	-	-	-	-	0.00200	-	-	-	0.00200	-	-	-	-	-
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Orthophosphate (as P)	-	-	-	-	-	0.00200	-	-	-	0.00200	-	-	-	-	-
Silica, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	-	-	-	-	-	0.233	-	-	-	0.0243	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	0.0000100	-	-	-	0.0000110	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	1.00E-04	-	-	-	1.00E-04	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E242647	E242646	E242647	E242646	E242647	400187	E242646	E242647
Date	18-Nov-2002	18-Nov-2002	18-Nov-2002	18-Nov-2002	18-Nov-2002	25-Nov-2002	25-Nov-2002	2-Sep-2004	17-May-2006	17-May-2006	15-Jun-2006	15-Jun-2006	19-Jul-2006	19-Jul-2006	19-Jul-2006
Client Sample ID	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE
Time	11:02	11:05	11:08	11:11	16:00	-	16:00	16:00	-	-	11:00	11:15	11:05	10:45	10:50
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Aliquot	Aliquot	Aliquot	Aliquot	Aliquot
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	-	-	5.00	-	10.00	5.00	-	-	-	-	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	108	107	107	95.0	71.0	144	122
Hardness (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	7.30	7.20	8.00	7.80	7.90	8.20	7.90
Turbidity (NTU)	-	-	-	-	0.780	-	2.58	0.560	14.1	11.3	3.30	1.50	2.00	0.400	0.500
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	0.900	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	-	-	-	-	-	-	-	40.7	55.8	47.9	53.7	30.0	29.5	72.1	33.9
Alkalinity (pH 8.3)	-	-	-	-	-	-	-	-	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	-	-	-	-	-	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Chloride (Cl)	-	-	-	-	-	-	-	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	-	-	-	-	-	-	-	21.9	1.30	6.70	2.10	14.2	4.20	1.10	24.6
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	0.0900	-	-	-	-	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	-	-	-	-	-	-	-	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00700	0.00500
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	-	-	-	-	-	-	-	0.0570	0.0380	0.0380	0.00200	0.0320	0.00300	0.0320	0.0170
Nitrite, Dissolved (as N)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	0.00200	0.00500	0.00500	0.00600	0.00400	0.001000	0.00300	0.00200
Silica, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	0.500	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	-	-	-	-	-	-	-	0.0227	0.117	0.0862	0.105	0.0616	0.0656	0.0163	0.0114
Antimony (Sb)	-	-	-	-	-	-	-	0.0000870	0.0000490	0.0000580	0.000138	0.0000860	0.0000330	0.000145	0.0000790
Arsenic (As)	-	-	-	-	-	-	-	1.00E-04	0.000300	0.000300	0.000400	1.00E-04	1.00E-04	0.000300	1.00E-04

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	E242646	E242646	E242647	E242647	E242647	400187	E242646	E242647	400187	E242646	E242647	400187	E242646	E242647
Date	14-Aug-2006	14-Aug-2006	23-Aug-2006	14-Aug-2006	23-Aug-2006	23-Aug-2006	6-Sep-2006	6-Sep-2006	6-Sep-2006	16-Oct-2006	16-Oct-2006	16-Oct-2006	14-Nov-2006	14-Nov-2006	14-Nov-2006
Client Sample ID	TELKWA R AT VILLAGE	TENAS CREEK	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE
Time	11:20	11:00	12:45	11:05	15:20	15:25	-	-	-	-	-	-	-	-	-
QAQC	Aliquot	Aliquot	Regular	Aliquot	Regular	Replicate	Aliquot	Aliquot	Aliquot	Aliquot	Aliquot	Aliquot	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	5.00	-	5.00	5.00	-	-	-	-	-	-	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	63.0	156	-	126	-	-	68.0	184	138	94.0	172	156	111	179	167
Hardness (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	7.80	8.10	-	7.90	-	-	7.80	8.20	7.90	7.80	8.10	7.80	7.90	8.00	7.90
Turbidity (NTU)	3.50	4.30	0.200	0.500	0.300	0.300	7.30	0.300	0.300	1.60	1.60	0.400	1.000	0.500	0.500
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	26.7	110	87.3	34.4	38.9	38.9	29.0	95.3	41.0	42.3	89.7	45.1	50.7	93.3	52.6
Alkalinity (pH 8.3)	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	0.1000	0.1000	-	0.1000	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Chloride (Cl)	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	5.00	3.70	0.500	23.8	35.4	35.2	4.00	3.30	24.0	6.20	3.20	31.5	6.60	3.90	25.5
Nutrients															
Total Nitrogen	-	-	0.0400	-	0.0700	0.0900	-	-	-	-	-	-	-	-	-
Total Dissolved Nitrogen	-	-	0.0380	-	0.0760	0.0900	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	0.0300	-	0.0200	0.0500	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	0.0150	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	-	-	-	-	-	-
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	0.00600	-	0.0540	0.0380	-	-	-	-	-	-	-	-	-
Nitrate+ Nitrite, Dissolved	0.00400	0.00500	0.00800	0.0300	0.0560	0.0400	0.00300	0.00500	0.0420	0.00200	0.00200	0.0470	0.0370	0.0430	0.126
Nitrite, Dissolved (as N)	-	-	0.00200	-	0.00200	0.00200	-	-	-	-	-	-	-	-	-
Total Organic Nitrogen	-	-	0.0300	-	0.0200	0.0400	-	-	-	-	-	-	-	-	-
Total Phosphorus (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Orthophosphate (as P)	0.001000	0.00200	0.00300	0.00200	0.00500	0.00300	0.001000	0.00500	0.00200	-	-	-	-	-	-
Silica, Dissolved	-	-	-	-	-	-	-	-	-	4.80	7.20	5.60	5.90	6.30	5.10
Carbon															
Total Organic Carbon	-	-	1.50	-	1.000	1.000	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-	-	-	0.500	1.10	0.500	2.80	3.40	3.30
Total Inorganic Carbon	-	-	-	-	-	-	-	-	-	11.1	22.8	12.0	13.6	23.6	13.1
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0585	0.00850	0.0133	0.00870	0.0114	0.0153	0.305	0.0159	0.0112	0.0368	0.0368	0.00630	0.0145	0.0163	0.00460
Antimony (Sb)	0.0000270	0.000143	0.000125	0.0000750	0.0000750	0.0000760	0.0000270	0.000130	0.0000700	0.0000360	0.000105	0.0000660	0.0000330	0.0000910	0.0000570
Arsenic (As)	1.00E-04	0.000400	0.000400	0.000200	0.000200	1.00E-04	1.00E-04	0.000400	1.00E-04	1.00E-04	0.000200	1.00E-04	0.000200	0.000300	0.000200

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	E242646	E242647	400187	E242646	E242647	400187	E242646	E242647	400187	E242646	E242647	400435	400435	E242646
Date	18-Dec-2006	18-Dec-2006	18-Dec-2006	22-Jan-2007	22-Jan-2007	22-Jan-2007	12-Feb-2007	12-Feb-2007	12-Feb-2007	19-Mar-2007	19-Mar-2007	19-Mar-2007	26-Sep-2007	26-Sep-2007	17-Dec-2007
Client Sample ID	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	TENAS CREEK
Time	13:30	12:30	13:05	12:15	10:54	11:15	12:33	11:34	11:55	13:10	12:25	12:05	1:30	1:31	13:30
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Aliquot	Aliquot	Aliquot	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	-	-	-	-	-	-	-	-	-	-	5.00	5.00	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	125	200	167	127	211	177	118	205	175	119	207	180	-	-	180
Hardness (as CaCO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88.0
pH	7.80	8.00	7.80	7.80	8.10	7.90	7.80	8.10	7.90	7.90	8.10	7.90	-	-	8.10
Turbidity (NTU)	0.900	0.300	0.1000	1.000	0.200	0.1000	1.10	0.200	0.200	1.50	0.700	0.200	1.40	1.40	-
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	57.7	99.9	57.1	57.3	104	62.4	55.1	103	64.0	54.0	102	67.0	31.0	31.0	87.0
Alkalinity (pH 8.3)	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Alkalinity, Bicarbonate	-	-	-	-	-	-	-	-	-	-	-	-	38.0	38.0	110
Alkalinity, Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	0.500	0.500	0.500
Anions															
Bromide (Br)	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	-	-	0.1000
Chloride (Cl)	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Fluoride (F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0600
Sulphate (SO ₄)	6.70	5.80	24.9	7.50	7.40	25.4	7.10	4.70	23.0	4.30	5.30	20.4	5.00	4.70	3.10
Nutrients															
Total Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	0.0900	0.0900	0.120
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	0.0870	0.0940	0.123
Total Kjeldahl Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	0.0800	0.0900	0.0800
Ammonia, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	0.0130	0.0250	0.00500
Nitrate+Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, Dissolved (as NO ₃)	-	-	-	-	-	-	-	-	-	-	-	-	0.00700	0.00400	0.0430
Nitrate+ Nitrite, Dissolved	0.0830	0.0730	0.162	0.0870	0.0860	0.164	0.0780	0.0740	0.152	0.0610	0.0490	0.133	0.00700	0.00400	0.0430
Nitrite, Dissolved (as N)	-	-	-	-	-	-	-	-	-	-	-	-	0.00200	0.00200	0.00200
Total Organic Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	0.0700	0.0600	0.0800
Total Phosphorus (as P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00200
Dissolved Orthophosphate (as P)	-	-	-	-	-	-	-	-	-	-	-	-	0.00800	0.00400	0.001000
Silica, Dissolved	7.10	6.90	5.00	7.10	7.00	4.10	7.50	7.00	5.50	7.50	7.30	5.20	-	-	7.90
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	1.000	0.700	-
Dissolved Organic Carbon	0.500	0.800	0.500	0.500	0.500	0.500	1.70	2.00	2.00	1.90	3.00	1.80	-	-	2.50
Total Inorganic Carbon	14.3	24.4	14.5	13.2	7.40	13.2	13.7	25.9	13.0	14.7	24.8	16.9	-	-	21.7
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0166	0.0154	0.00440	0.0123	0.0118	0.00290	0.0216	0.00820	0.00250	0.0389	0.0307	0.00560	0.0709	0.0748	0.0361
Antimony (Sb)	0.0000300	0.0000870	0.0000550	0.0000310	0.0000650	0.0000460	0.0000280	0.0000730	0.0000470	0.0000290	0.0000730	0.0000470	0.0000290	0.0000280	0.0000800
Arsenic (As)	0.000200	0.000300	1.00E-04	0.000200	0.000300	1.00E-04	0.000300	0.000300	0.000200	0.000300	0.000500	0.000200	0.000400	0.000400	0.000320

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E242647	400187	E242646	400187	E242646	400187	E242646	E242647	400187	E242646	E242646	E242647	E242647	400187	E242646
Date	17-Dec-2007	22-Jan-2008	22-Jan-2008	18-Mar-2008	18-Mar-2008	15-Apr-2008	15-Apr-2008	15-Apr-2008	17-Jun-2008	17-Jun-2008	17-Jun-2008	17-Jun-2008	17-Jun-2008	21-Jul-2008	21-Jul-2008
Client Sample ID	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	TELKWA R AT VILLAGE	TENAS CREEK	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK
Time	13:00	13:00	13:30	13:00	13:30	14:25	15:00	14:55	12:30	12:40	15:30	12:00	15:00	13:15	14:10
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	160	130	190	140	220	130	200	210	60.0	110	110	110	110	59.0	110
Hardness (as CaCO ₃)	79.9	64.8	98.3	65.9	106	68.3	98.9	108	28.3	51.6	53.6	51.0	50.1	27.0	53.1
pH	8.00	7.90	8.10	8.00	8.20	8.10	8.20	8.20	7.50	7.80	7.80	7.70	7.70	7.80	8.10
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	8.50	1.60
Acidity (pH 4.5)	-	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Acidity (pH 8.3)	-	2.40	2.50	2.40	3.30	1.90	2.50	1.80	1.50	1.60	1.70	1.80	1.70	2.80	2.80
Alkalinity (pH 4.5)	63.0	60.0	95.0	65.0	110	60.0	95.0	80.0	25.0	51.0	52.0	37.0	37.0	26.0	57.0
Alkalinity (pH 8.3)	0.500	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	77.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	0.500	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	-	-	-	-	-	-	-
Chloride (Cl)	0.500	0.500	0.500	0.900	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.800
Fluoride (F)	0.0600	-	-	0.0500	0.0500	0.0400	0.0700	0.0400	0.0200	0.0300	0.0300	0.0200	0.0200	0.0200	0.0300
Sulphate (SO ₄)	17.1	5.00	4.40	7.10	6.60	6.90	9.80	27.0	3.70	1.40	2.70	15.0	15.0	4.50	2.40
Nutrients															
Total Nitrogen	0.170	0.0900	0.160	0.130	0.120	0.190	0.180	0.230	0.0300	0.0400	0.0500	0.0900	0.0800	0.0500	0.0800
Total Dissolved Nitrogen	0.166	-	0.158	-	0.120	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	-	0.0200	-	0.0400	-	0.130	0.0800	0.1000	0.0300	0.0400	0.0500	0.0600	0.0500	0.0400	0.0800
Total Kjeldahl Nitrogen, Dissolved	0.0800	-	0.1000	-	0.0600	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	-	-	-	0.0000000	-	0.0000000	0.0400	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Ammonia, Dissolved	0.00500	0.00500	0.00600	0.00500	0.00500	0.00500	0.0380	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
Nitrate+Nitrite	-	0.0700	-	0.0900	-	0.0600	0.1000	0.130	0.0000000	0.0000000	0.0000000	0.0300	0.0300	0.01000	0.0000000
Nitrate, Dissolved (as NO ₃)	0.0840	0.0780	0.0580	0.0840	0.0600	0.0590	0.0510	0.127	0.00500	0.00200	0.00200	0.0290	0.0290	0.00600	0.00200
Nitrate+ Nitrite, Dissolved	0.0860	0.0780	0.0580	0.0840	0.0600	0.0590	0.1000	0.127	0.00700	0.00300	0.00200	0.0310	0.0290	0.00800	0.00200
Nitrite, Dissolved (as N)	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.0490	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200
Total Organic Nitrogen	0.0800	0.0200	0.1000	0.0400	0.0600	0.130	0.0400	0.1000	0.0300	0.0400	0.0500	0.0600	0.0500	0.0400	0.0800
Total Phosphorus (as P)	0.00300	0.00400	0.00800	0.00600	0.00500	0.00600	0.0180	0.00300	0.00200	0.00200	0.00200	0.00200	0.00200	0.00600	0.00200
Dissolved Orthophosphate (as P)	0.001000	0.00500	0.00400	0.00400	0.00400	0.00300	0.001000	0.00200	0.00300	0.001000	0.001000	0.001000	0.001000	0.00400	0.00200
Silica, Dissolved	6.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	2.20	1.10	1.90	1.30	1.90	3.80	4.60	3.50	2.30	3.40	3.50	2.50	2.70	0.600	1.20
Total Inorganic Carbon	15.5	15.0	23.6	16.1	27.5	15.5	24.4	19.9	5.80	13.3	14.8	11.3	9.30	5.40	13.2
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0226	0.0189	0.0191	0.0157	0.0190	0.0740	0.288	0.0257	0.0793	0.0464	0.0504	0.0371	0.0379	0.0913	0.0189
Antimony (Sb)	0.0000600	0.0000400	0.0000900	0.0000300	0.0000800	0.0000300	0.0000700	0.0000500	0.0000400	0.000110	0.000130	0.0000800	0.0000800	0.0000400	0.000180
Arsenic (As)	0.000130	0.000200	0.000320	0.000190	0.000280	0.000240	0.000430	0.000130	0.000210	0.000400	0.000450	0.000190	0.000190	0.000150	0.000410

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	E242646	E242647	400187	400187	E242646	E242647	E242647	400187	E242646	E242647	400187	E242646	E242647	400187
Date	18-Aug-2008	18-Aug-2008	18-Aug-2008	15-Sep-2008	15-Sep-2008	15-Sep-2008	15-Sep-2008	15-Sep-2008	20-Oct-2008	20-Oct-2008	20-Oct-2008	19-Nov-2008	19-Nov-2008	19-Nov-2008	15-Dec-2008
Client Sample ID	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE
Time	12:50	13:55	13:30	10:55	14:05	11:45	11:30	13:30	12:50	12:00	12:25	12:25	13:25	13:00	11:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Tests															
Colour, True	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	54.0	130	120	80.0	80.0	150	130	130	98.0	170	140	93.0	160	140	120
Hardness (as CaCO ₃)	24.7	62.2	49.1	35.8	36.7	69.1	57.3	57.1	45.1	83.2	65.1	44.5	77.9	64.9	54.0
pH	7.70	8.10	7.80	7.80	7.80	8.10	7.90	7.90	7.80	8.10	7.90	7.90	8.10	8.00	7.90
Turbidity (NTU)	23.0	0.800	0.700	3.40	4.40	0.500	1.10	0.700	0.900	0.700	0.500	2.00	1.000	1.30	2.70
Acidity (pH 4.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	23.0	67.0	29.0	35.0	35.0	74.0	41.0	41.0	44.0	85.0	50.0	44.0	81.0	55.0	56.0
Alkalinity (pH 8.3)	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Alkalinity, Bicarbonate	28.0	82.0	36.0	43.0	43.0	91.0	50.0	50.0	54.0	100.0	61.0	54.0	99.0	67.0	69.0
Alkalinity, Carbonate	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Anions															
Bromide (Br)	-	-	-	-	-	-	-	-	-	-	-	0.1000	0.1000	0.1000	0.1000
Chloride (Cl)	0.500	0.500	0.500	0.500	0.500	0.600	0.500	0.500	1.10	0.700	1.000	0.700	0.800	0.500	0.500
Fluoride (F)	0.0200	0.0300	0.0200	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0200	0.0400	0.0400	0.0400	0.0300
Sulphate (SO ₄)	4.20	2.40	23.0	5.50	5.50	3.50	21.0	21.0	5.80	4.10	21.0	4.00	3.20	15.0	4.10
Nutrients															
Total Nitrogen	0.0600	0.0800	0.0900	0.0400	0.0300	0.0500	0.0700	0.0800	0.0600	0.0400	0.0900	0.0500	0.0800	0.140	0.120
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	0.0500	0.0700	0.0600	0.0300	0.0200	0.0500	0.0500	0.0500	0.0600	0.0400	0.0400	0.0200	0.0700	0.0900	0.0700
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	0.0000000	0.0000000	0.01000	0.01000	-	0.0000000	0.01000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.01000	0.0000000
Ammonia, Dissolved	0.00500	0.00700	0.00700	0.00600	0.00500	0.00500	0.00600	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.01000	0.00500
Nitrate+Nitrite	0.01000	0.01000	0.0300	0.01000	0.01000	0.0000000	0.0200	0.0300	0.0000000	0.0000000	0.0500	0.0300	0.01000	0.0500	0.0500
Nitrate, Dissolved (as NO ₃)	0.00200	0.00200	0.0260	0.0110	0.00900	0.00200	0.0260	0.0270	0.00400	0.00200	0.0470	0.0320	0.0160	0.0510	0.0420
Nitrate+ Nitrite, Dissolved	0.00800	0.00200	0.0260	0.0110	0.00900	0.00200	0.0260	0.0270	0.00600	0.00200	0.0470	0.0320	0.0160	0.0510	0.0440
Nitrite, Dissolved (as N)	0.0120	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200
Total Organic Nitrogen	0.0500	0.0700	0.0500	0.0200	0.0200	0.0500	0.0400	0.0500	0.0600	0.0400	0.0400	0.0200	0.0700	0.0800	0.0700
Total Phosphorus (as P)	0.0170	0.00300	0.00200	0.00700	0.00700	0.00400	0.00300	0.00300	0.00400	0.00300	0.00400	0.00800	0.00400	0.00400	0.00400
Dissolved Orthophosphate (as P)	0.0160	0.00200	0.001000	0.00300	0.00300	0.00200	0.001000	0.00200	0.00200	0.001000	0.001000	0.00200	0.00200	0.00200	0.00300
Silica, Dissolved	3.50	6.90	5.60	5.00	4.90	6.80	5.70	5.60	6.20	7.00	5.60	7.30	8.00	6.00	9.00
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	0.500	0.500	0.500	1.50	1.50	0.500	0.700	1.30	1.20	1.50	1.10	3.00	5.60	4.30	3.60
Total Inorganic Carbon	3.90	14.2	5.10	8.10	7.00	15.1	8.50	8.70	11.5	22.1	12.6	10.6	20.2	13.9	12.5
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.370	0.0209	0.0151	0.141	0.127	0.00780	0.0178	0.0140	0.0183	0.0157	0.0104	0.0493	0.0587	0.0341	0.0450
Antimony (Sb)	0.0000300	0.000210	0.0000900	0.0000400	0.0000400	0.000150	0.0000800	0.0000800	0.0000400	1.00E-04	0.0000600	0.0000400	0.0000900	0.0000600	0.0000400
Arsenic (As)	0.000130	0.000410	0.000130	0.000130	0.000120	0.000330	0.000160	0.000160	0.000160	0.000260	0.000120	0.000190	0.000330	0.000150	0.000240

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E242646	E242647	400187	400187	400434	400435	400435	400434	400434	400434	400435	400435	400435	400435	400435
Date	15-Dec-2008	15-Dec-2008	17-Feb-2009	15-Mar-2009	29-Aug-2012	29-Aug-2012	29-Aug-2012	6-Sep-2012	18-Sep-2012	26-Sep-2012	6-Sep-2012	18-Sep-2012	26-Sep-2012	26-Sep-2012	26-Sep-2012
Client Sample ID	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS
Time	12:15	11:50	13:10	11:05	14:00	-	14:45	14:00	14:00	13:40	14:30	14:40	9:50	11:50	12:40
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Replicate-First
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>In Situ</i>															
Temperature (°C)	-	-	-	-	-	-	-	13.7	12.7	11.3	13.7	12.6	10.1	10.1	-
pH	-	-	-	-	-	-	-	7.11	7.62	7.62	7.13	7.57	7.40	7.40	-
Conductivity (µS/cm)	-	-	-	-	-	-	-	56.1	58.4	58.6	56.8	59.0	58.8	58.8	-
Dissolved Oxygen	-	-	-	-	-	-	-	9.52	10.1	9.82	9.60	9.57	10.2	10.2	-
Physical Tests															
Colour, True	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour (TAC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm)	170	140	120	130	-	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO ₃)	63.1	70.4	53.3	57.7	-	-	-	-	-	-	-	-	-	-	-
pH	8.10	7.90	7.90	8.00	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	1.30	2.00	-	-	-	2.12	-	-	1.71	-	-	1.61	-	-	-
Acidity (pH 4.5)	-	-	0.500	0.500	-	-	-	-	-	-	-	-	-	-	-
Acidity (pH 8.3)	-	-	0.500	0.500	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 4.5)	88.0	57.0	57.0	59.0	-	-	-	-	-	-	-	-	-	-	-
Alkalinity (pH 8.3)	0.500	0.500	0.500	0.500	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate	110	69.0	69.0	72.0	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate	0.500	0.500	0.500	0.500	-	-	-	-	-	-	-	-	-	-	-
Anions															
Bromide (Br)	0.1000	0.1000	0.1000	0.1000	-	-	-	-	-	-	-	-	-	-	-
Chloride (Cl)	0.500	0.500	0.600	0.500	-	0.550	-	-	0.880	-	-	1.20	-	-	-
Fluoride (F)	0.0400	0.0300	0.0400	0.0300	-	-	-	-	-	-	-	-	-	-	-
Sulphate (SO ₄)	2.00	15.0	4.90	5.90	-	-	-	-	-	-	-	-	-	-	-
Nutrients															
Total Nitrogen	0.120	0.130	0.150	0.110	-	0.176	-	-	0.0610	-	-	0.122	-	-	-
Total Dissolved Nitrogen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	0.0900	0.1000	0.0700	0.0300	-	0.166	-	-	0.0250	-	-	0.0980	-	-	-
Total Kjeldahl Nitrogen, Dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Total	0.0000000	0.0000000	0.0000000	0.01000	-	0.0000000	-	-	0.00500	-	-	0.0200	-	-	-
Ammonia, Dissolved	0.00500	0.00500	0.00500	0.00800	-	0.00500	-	-	0.0150	-	-	0.0200	-	-	-
Nitrate+Nitrite	0.0300	0.0300	0.0800	0.0800	-	0.01000	-	-	0.0360	-	-	0.0240	-	-	-
Nitrate, Dissolved (as NO ₃)	0.0300	0.0330	0.0760	0.0820	-	0.00940	-	-	0.0329	-	-	0.0232	-	-	-
Nitrate+ Nitrite, Dissolved	0.0300	0.0330	0.0780	0.0840	-	0.00940	-	-	0.0356	-	-	0.0232	-	-	-
Nitrite, Dissolved (as N)	0.00200	0.00200	0.00200	0.00200	-	0.00200	-	-	0.00270	-	-	0.00200	-	-	-
Total Organic Nitrogen	0.0900	0.1000	0.0700	0.0200	-	0.166	-	-	0.0200	-	-	0.0780	-	-	-
Total Phosphorus (as P)	0.00300	0.00400	0.00200	0.00400	-	0.00200	-	-	0.00250	-	-	0.00200	-	-	-
Dissolved Orthophosphate (as P)	0.00300	0.00400	0.001000	0.001000	-	0.00130	-	-	0.001000	-	-	0.001000	-	-	-
Silica, Dissolved	8.10	6.30	8.50	7.90	-	-	-	-	-	-	-	-	-	-	-
Carbon															
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	7.20	5.80	2.90	2.50	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	15.7	13.4	13.5	14.2	-	-	-	-	-	-	-	-	-	-	-
Total Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Aluminum (Al)	0.0373	0.0261	0.0200	0.00970	-	0.0876	-	-	0.0671	-	-	0.0638	-	-	-
Antimony (Sb)	0.0000600	0.0000600	0.0000400	0.0000300	-	0.000500	-	-	0.000500	-	-	0.000500	-	-	-
Arsenic (As)	0.000280	0.000170	0.000190	0.000170	-	1.00E-04	-	-	0.000150	-	-	0.000130	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435
Date	26-Sep-2012
Client Sample ID	BULKLEY R. IDZ AT SMITHERS
Time	13:10
QAQC	Replicate-Second
ALS Sample ID	-
<i>In Situ</i>	
Temperature (°C)	-
pH	-
Conductivity (µS/cm)	-
Dissolved Oxygen	-
Physical Tests	
Colour, True	-
Colour (TAC)	-
Conductivity (µS/cm)	-
Hardness (as CaCO ₃)	-
pH	-
Turbidity (NTU)	-
Acidity (pH 4.5)	-
Acidity (pH 8.3)	-
Alkalinity (pH 4.5)	-
Alkalinity (pH 8.3)	-
Alkalinity, Bicarbonate	-
Alkalinity, Carbonate	-
Anions	
Bromide (Br)	-
Chloride (Cl)	-
Fluoride (F)	-
Sulphate (SO ₄)	-
Nutrients	
Total Nitrogen	-
Total Dissolved Nitrogen	-
Total Kjeldahl Nitrogen	-
Total Kjeldahl Nitrogen, Dissolved	-
Ammonia, Total	-
Ammonia, Dissolved	-
Nitrate+Nitrite	-
Nitrate, Dissolved (as NO ₃)	-
Nitrate+ Nitrite, Dissolved	-
Nitrite, Dissolved (as N)	-
Total Organic Nitrogen	-
Total Phosphorus (as P)	-
Dissolved Orthophosphate (as P)	-
Silica, Dissolved	-
Carbon	
Total Organic Carbon	-
Dissolved Organic Carbon	-
Total Inorganic Carbon	-
Total Carbon	-
Total Metals	
Aluminum (Al)	-
Antimony (Sb)	-
Arsenic (As)	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	400187	400434	400435	400434	400435	400187	400434	400435	400434	400434	400435	400435	400187	400434
Date	20-Mar-1974	4-Jun-1974	25-Jun-1974	25-Jun-1974	10-Jul-1974	10-Jul-1974	17-Sep-1974	24-Sep-1974	24-Sep-1974	21-May-1975	21-May-1975	21-May-1975	21-May-1975	2-Jun-1975	25-Jun-1975
Client Sample ID	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE
Time	8:30	17:05	11:45	11:40	10:10	10:00	22:15	15:30	15:40	9:15	9:20	9:20	9:30	17:45	10:30
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals <i>(cont'd)</i>															
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	12.8	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0110	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0200	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	18.4	-
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00400	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.500	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000500	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)	0.00800	0.0200	-	-	-	-	0.0260	-	-	0.0500	-	0.0480	-	0.340	0.0460
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00500	-
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	0.000500	-	0.000500	-	-	-
Calcium (Ca)	19.7	9.40	-	-	-	-	7.70	-	-	8.80	-	8.90	-	8.40	19.0
Chromium (Cr)	0.00500	-	-	-	-	-	0.00500	-	-	0.00500	-	0.00500	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	0.001000	-	-	-	-	-	0.001000	-	-	0.00200	-	0.00300	-	-	-
Iron (Fe)	0.1000	-	-	-	-	-	0.1000	-	-	0.1000	-	0.1000	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187
Date	25-Jun-1975	17-Jul-1975	7-Oct-1975	11-Feb-1985	11-Mar-1985	17-Apr-1985	13-May-1985	12-Jun-1985	9-Jul-1985	13-Aug-1985	10-Sep-1985	8-Oct-1985	5-Nov-1985	10-Dec-1985	8-Jan-1986
Client Sample ID	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE
Time	10:45	16:30	12:00	11:00	-	13:45	8:00	14:30	10:30	14:00	11:10	9:00	8:30	7:00	13:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)															
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	0.000500	-	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500
Calcium (Ca)	-	-	8.40	16.3	19.5	15.6	13.6	8.12	7.38	8.45	11.7	12.9	16.8	17.0	19.3
Chromium (Cr)	-	0.00500	0.00500	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Cobalt (Co)	-	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Copper (Cu)	-	0.00500	0.001000	0.001000	0.001000	0.00200	0.00400	0.00300	0.00200	0.00300	0.001000	0.001000	0.001000	0.00300	0.00200
Iron (Fe)	-	1.30	0.200	0.150	0.400	0.980	2.02	1.30	0.680	0.270	0.220	0.190	0.290	0.140	0.230
Lead (Pb)	-	0.00300	0.001000	0.00200	0.001000	0.00200	0.001000	0.001000	0.00200	0.001000	0.001000	0.00200	0.001000	0.00500	0.00500
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	1.40	0.920	3.30	3.35	3.29	3.11	1.82	1.39	1.20	1.78	2.35	2.62	2.93	2.97
Manganese (Mn)	-	0.0600	-	0.01000	0.0200	0.0400	0.0700	0.0500	0.0300	0.0200	0.0200	0.0200	0.0300	0.01000	0.01000
Mercury (Hg)	-	-	0.0000500	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	0.000500	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Nickel (Ni)	-	0.01000	-	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Phosphorus (P)	0.0480	0.0310	0.00600	0.00500	0.0110	0.0270	0.0410	0.0240	0.0210	0.00800	0.00500	0.00500	0.00400	0.00500	0.00900
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Zinc (Zn)	-	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00600	0.00500
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	-	-	0.0200	0.0200	0.0800	0.1000	0.0400	0.0700	0.0500	0.0300	0.0200	0.0300	0.0200	0.0200
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000
Barium (Ba)	-	-	-	0.0400	0.0300	0.0300	0.0200	0.01000	0.0200	0.0300	0.0400	0.0300	0.0500	0.0400	0.0500
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Cadmium (Cd)	-	-	-	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500
Calcium (Ca)	7.50	9.10	8.30	15.8	15.0	14.9	12.7	7.80	7.12	8.19	10.9	12.9	16.8	16.2	19.3
Chromium (Cr)	-	-	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Cobalt (Co)	-	-	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Copper (Cu)	-	-	-	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000
Iron (Fe)	-	-	-	0.0800	0.180	0.310	0.260	0.0700	0.0600	0.0500	0.0900	0.120	0.170	0.0700	0.230

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187
Date	11-Feb-1986	19-Mar-1986	7-Apr-1986	7-May-1986	2-Jun-1986	8-Jul-1986	5-Aug-1986	4-Sep-1986	4-Oct-1986	9-Oct-1986	12-Nov-1986	10-Dec-1986	12-Jan-1987	18-Feb-1987	26-Mar-1987
Client Sample ID	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE
Time	12:00	9:30	14:00	9:00	9:30	14:00	10:00	9:30	18:00	8:30	10:30	9:30	9:45	9:15	8:15
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals <i>(cont'd)</i>															
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.01000	-	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500
Calcium (Ca)	20.3	18.2	18.1	13.0	8.25	8.65	9.21	8.78	-	9.53	13.9	18.5	18.2	18.2	21.9
Chromium (Cr)	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Cobalt (Co)	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Copper (Cu)	0.001000	0.00300	0.001000	0.00600	0.00400	0.00300	0.00400	0.0300	-	0.00400	0.001000	0.001000	0.001000	0.00200	0.0400
Iron (Fe)	0.150	0.630	1.37	2.97	1.80	0.940	1.02	13.8	-	3.18	0.170	0.120	0.160	0.310	0.510
Lead (Pb)	0.001000	0.001000	0.001000	0.00500	0.00200	0.00300	0.001000	0.1000	-	0.00400	0.001000	0.00300	0.001000	0.00200	0.00500
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	3.56	3.45	3.85	3.17	1.97	1.55	1.65	4.84	-	2.73	2.19	2.89	3.13	3.10	3.61
Manganese (Mn)	0.01000	0.0200	0.0500	0.150	0.0800	0.0400	0.0400	0.540	-	0.110	0.0200	0.01000	0.01000	0.0200	0.0200
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Nickel (Ni)	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	-	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Phosphorus (P)	0.00500	0.0190	0.0260	0.0520	0.0290	0.0260	0.0350	0.585	-	0.0900	0.00500	0.00300	0.00300	0.00500	0.00900
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.0300	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Zinc (Zn)	0.00500	0.00500	0.00500	0.00500	0.00600	0.00700	0.0120	0.0800	-	0.0200	0.00500	0.00500	0.00500	0.00500	0.00500
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	0.0200	0.0400	0.0400	0.140	0.0600	0.0300	0.0500	-	-	0.0800	0.0200	0.0300	0.0200	0.0200	0.0300
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	-	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000
Barium (Ba)	0.0400	0.0400	0.0300	0.0300	0.0200	0.0200	0.0200	0.0700	-	0.0200	0.0200	0.0400	0.0400	0.0400	0.0400
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Cadmium (Cd)	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	-	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500
Calcium (Ca)	19.4	16.8	17.6	11.6	6.94	8.13	7.89	7.25	-	8.16	12.2	17.2	17.6	18.2	20.3
Chromium (Cr)	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Cobalt (Co)	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	-	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Copper (Cu)	0.001000	0.001000	0.001000	0.001000	0.00200	0.001000	0.001000	0.00300	-	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000
Iron (Fe)	0.110	0.160	0.300	0.350	0.0700	0.0500	0.0600	0.130	-	0.110	0.0900	0.1000	0.0900	0.180	0.180

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	400187	400187	400187	400187	400434	400434	400434	400435	400435	400435	400187	400434	400434	400435
Date	21-Apr-1987	19-May-1987	17-Jun-1987	14-Jul-1987	11-Aug-1987	16-Aug-1987	23-Aug-1987	31-Aug-1987	16-Aug-1987	23-Aug-1987	31-Aug-1987	8-Sep-1987	8-Sep-1987	14-Sep-1987	8-Sep-1987
Client Sample ID	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS
Time	9:30	10:15	13:30	11:50	11:00	15:00	12:40	16:00	15:30	13:30	16:30	11:30	18:30	18:15	18:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals <i>(cont'd)</i>															
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	0.000500	0.000500	0.000500	0.000500	0.000500	-	-	0.01000	-	-	0.01000	0.000500	0.01000	0.01000	0.01000
Calcium (Ca)	17.3	11.7	10.3	8.90	8.53	-	-	7.78	-	-	7.83	9.21	7.38	8.02	7.39
Chromium (Cr)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	0.0200	-	-	0.0200	0.01000	0.01000	0.01000	0.01000
Cobalt (Co)	0.1000	0.1000	0.1000	0.1000	0.1000	-	-	0.1000	-	-	0.1000	0.1000	0.1000	0.1000	0.1000
Copper (Cu)	0.00300	0.00500	0.00200	0.001000	0.001000	-	-	0.0200	-	-	0.0200	0.00300	0.01000	0.01000	0.01000
Iron (Fe)	1.15	0.530	0.390	0.710	0.950	-	-	0.460	-	-	0.410	0.770	0.200	0.200	0.0700
Lead (Pb)	0.001000	0.00200	0.00300	0.00200	0.00700	-	-	0.1000	-	-	0.1000	0.00300	0.1000	0.1000	0.1000
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	3.14	1.88	1.70	1.40	1.60	-	-	1.16	-	-	1.13	1.55	0.930	0.960	0.880
Manganese (Mn)	0.0500	0.0300	0.0200	0.0300	0.0300	-	-	0.0200	-	-	0.0200	0.0300	0.01000	0.01000	0.01000
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	0.0200	-	-	0.01000	0.01000	0.01000	0.01000	0.01000
Nickel (Ni)	0.0500	0.0500	0.0500	0.0500	0.0500	-	-	0.0500	-	-	0.0500	0.0500	0.0500	0.0500	0.0500
Phosphorus (P)	0.0240	0.0180	0.0110	0.0140	0.0140	0.01000	0.00800	0.0210	0.00800	0.00900	0.0190	0.0200	0.0110	0.0110	0.0110
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	0.0200	-	-	0.0200	0.01000	0.01000	0.01000	0.01000
Zinc (Zn)	0.00500	0.00500	0.00500	0.0500	0.00500	-	-	0.01000	-	-	0.0200	0.00500	0.01000	0.01000	0.01000
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	0.180	0.140	0.0200	0.0600	0.0700	-	-	-	-	-	-	0.0700	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	0.001000	0.001000	0.001000	0.001000	0.001000	-	-	-	-	-	-	0.001000	-	-	-
Barium (Ba)	0.0300	0.0300	0.0200	0.0200	0.0200	-	-	-	-	-	-	0.01000	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	0.01000	-	-	-
Cadmium (Cd)	0.000500	0.000500	0.000500	0.000500	0.000500	-	-	-	-	-	-	0.000500	-	-	-
Calcium (Ca)	16.3	11.7	10.3	8.90	8.52	-	-	-	-	-	-	9.20	-	-	-
Chromium (Cr)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	0.01000	-	-	-
Cobalt (Co)	0.1000	0.1000	0.1000	0.1000	0.1000	-	-	-	-	-	-	0.1000	-	-	-
Copper (Cu)	0.001000	0.001000	0.001000	0.001000	0.001000	-	-	-	-	-	-	0.001000	-	-	-
Iron (Fe)	0.310	0.130	0.0300	0.0400	0.0500	-	-	-	-	-	-	0.0300	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400187	400187	400187	400187	400434	400434	400434	400435	400435	400435	400434	400434	400435	400435
Date	14-Sep-1987	7-Oct-1987	16-Nov-1987	8-Feb-1988	8-Mar-1988	16-Aug-1988	22-Aug-1988	29-Aug-1988	16-Aug-1988	22-Aug-1988	29-Aug-1988	6-Sep-1988	12-Sep-1988	6-Sep-1988	12-Sep-1988
Client Sample ID	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS
Time	17:30	11:00	11:30	9:00	9:00	13:00	14:30	12:45	13:30	14:00	12:15	12:45	12:00	12:15	11:30
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals <i>(cont'd)</i>															
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	0.01000	0.000500	0.000500	0.000500	0.000500	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	7.48	12.2	12.5	18.6	19.0	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	0.1000	0.1000	0.1000	0.1000	0.1000	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	0.01000	0.00400	0.01000	0.00200	0.00400	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	0.130	0.580	0.200	0.210	0.300	-	-	-	-	-	-	-	-	-	-
Lead (Pb)	0.1000	0.001000	0.00200	0.001000	0.001000	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	0.920	1.89	2.20	3.32	3.33	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	0.01000	0.0300	0.01000	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	0.0500	0.0500	0.0500	0.0500	0.0500	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)	0.00900	0.0150	0.00700	0.00400	0.00300	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	0.01000	0.00500	0.00500	0.00500	0.00500	-	-	-	-	-	-	-	-	-	-
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	0.0400	0.0900	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	0.001000	0.001000	0.001000	0.001000	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	-	0.0300	0.0300	0.0400	0.0400	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	0.000500	0.000500	0.000500	0.000500	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	11.3	12.5	17.8	19.0	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	0.1000	0.1000	0.1000	0.1000	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	0.001000	0.00200	0.001000	0.001000	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	0.0400	0.140	0.0800	0.170	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400434	400434	400435	400435	400434	400434	400434	400435	400435	400435	400435	400434	400435	400434	400434
Date	24-Jul-1989	31-Jul-1989	24-Jul-1989	31-Jul-1989	8-Aug-1989	14-Aug-1989	21-Aug-1989	8-Aug-1989	14-Aug-1989	21-Aug-1989	26-Jun-1990	26-Jun-1990	3-Jul-1990	9-Jul-1990	18-Jul-1990
Client Sample ID	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE
Time	12:12	10:00	13:00	9:40	10:38	-	-	11:05	-	11:50	14:28	14:46	14:02	13:12	12:48
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)															
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400434	400435	400435	400435	400435	400434	400434	400434	400434	400434	400434	400435	400435	400435	400435
Date	23-Jul-1990	3-Jul-1990	9-Jul-1990	18-Jul-1990	23-Jul-1990	16-Jul-1991	16-Jul-1991	22-Jul-1991	22-Jul-1991	31-Jul-1991	31-Jul-1991	16-Jul-1991	16-Jul-1991	22-Jul-1991	22-Jul-1991
Client Sample ID	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS
Time	12:10	14:25	13:28	11:45	12:28	-	15:50	-	15:45	-	12:15	-	15:20	-	15:15
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)															
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400435	400434	400434	400434	400435	400435	400435	400435	400435	400434	400434	400435	400435	400434	400434
Date	31-Jul-1991	31-Jul-1991	6-Aug-1991	6-Aug-1991	15-Aug-1991	6-Aug-1991	6-Aug-1991	6-Aug-1991	15-Aug-1991	15-Aug-1991	20-Jul-1992	27-Jul-1992	20-Jul-1992	27-Jul-1992	4-Aug-1992	10-Aug-1992
Client Sample ID	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE
Time	-	11:25	-	12:20	12:25	-	12:00	-	11:55	15:06	13:59	14:33	14:15	13:30	14:30	
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)																
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400435	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125
Date	4-Aug-1992	10-Aug-1992	3-Oct-2001	10-Oct-2001	10-Oct-2001	22-Oct-2001	22-Oct-2001	29-Oct-2001	29-Oct-2001	8-Aug-2002	8-Aug-2002	14-Aug-2002	14-Aug-2002	20-Aug-2002	20-Aug-2002
Client Sample ID	BULKLEY R.	BULKLEY R.	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY
	IDZ AT	IDZ AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT
	SMITHERS	SMITHERS	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA
			WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM
			INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE
Time	13:50	15:11	14:30	14:00	14:10	12:30	12:40	12:00	12:10	-	16:00	-	16:00	-	16:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)															
Barium (Ba)	-	-	0.0189	0.0190	-	0.0200	-	0.0170	-	-	0.0203	-	-	-	-
Beryllium (Be)	-	-	0.0000070	0.001000	-	0.001000	-	0.001000	-	-	0.0000200	-	-	-	-
Bismuth (Bi)	-	-	0.0000200	-	-	-	-	-	-	-	0.0000200	-	-	-	-
Boron (B)	-	-	0.00200	0.01000	-	0.01000	-	0.01000	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	0.0000100	0.00600	-	0.00600	-	0.00600	-	-	0.0000100	-	-	-	-
Calcium (Ca)	-	-	7.20	8.10	-	9.20	-	8.00	-	-	7.85	-	-	-	-
Chromium (Cr)	-	-	0.00700	0.00600	-	0.00600	-	0.00600	-	-	0.000200	-	-	-	-
Cobalt (Co)	-	-	0.0000520	0.00600	-	0.00600	-	0.00600	-	-	0.0000050	-	-	-	-
Copper (Cu)	-	-	0.00106	0.00600	-	0.00600	-	0.00600	-	-	0.000800	-	-	-	-
Iron (Fe)	-	-	0.103	0.0750	-	0.0670	-	0.0570	-	-	-	-	-	-	-
Lead (Pb)	-	-	0.0000400	0.0600	-	0.0600	-	0.0600	-	-	0.000130	-	-	-	-
Lithium (Li)	-	-	0.000120	-	-	-	-	-	-	-	0.0000500	-	-	-	-
Magnesium (Mg)	-	-	0.821	0.800	-	1.000	-	0.900	-	-	0.850	-	-	-	-
Manganese (Mn)	-	-	0.00645	0.00600	-	0.00500	-	0.00400	-	-	0.00996	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	0.000510	0.01000	-	0.01000	-	0.01000	-	-	0.000350	-	-	-	-
Nickel (Ni)	-	-	0.000520	0.0200	-	0.0200	-	0.0200	-	-	0.0000500	-	-	-	-
Phosphorus (P)	-	-	0.1000	0.1000	-	0.1000	-	0.1000	-	-	0.00300	-	-	-	-
Potassium (K)	-	-	0.300	0.200	-	0.200	-	0.200	-	-	-	-	-	-	-
Selenium (Se)	-	-	0.000500	0.0600	-	0.0600	-	0.0600	-	-	0.000300	-	-	-	-
Silicon (Si)	-	-	1.43	1.38	-	1.69	-	1.41	-	-	-	-	-	-	-
Silver (Ag)	-	-	0.0000200	0.01000	-	0.01000	-	0.01000	-	-	0.0000200	-	-	-	-
Sodium (Na)	-	-	0.900	0.900	-	1.000	-	0.900	-	-	-	-	-	-	-
Strontium (Sr)	-	-	0.0337	0.0280	-	0.0300	-	0.0260	-	-	0.0315	-	-	-	-
Sulphur (S)	-	-	1.08	1.11	-	1.10	-	0.910	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	0.0000030	-	-	-	-	-	-	-	0.0000020	-	-	-	-
Tin (Sn)	-	-	0.0000100	0.0600	-	0.0600	-	0.0600	-	-	0.0000200	-	-	-	-
Titanium (Ti)	-	-	0.00300	0.00200	-	0.00200	-	0.00200	-	-	-	-	-	-	-
Uranium (U)	-	-	0.0000230	-	-	-	-	-	-	-	0.0000020	-	-	-	-
Vanadium (V)	-	-	0.00204	0.01000	-	0.01000	-	0.01000	-	-	0.000320	-	-	-	-
Zinc (Zn)	-	-	1.00E-04	0.00200	-	0.00200	-	0.00200	-	-	0.000500	-	-	-	-
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125
Date	27-Aug-2002	27-Aug-2002	3-Sep-2002	3-Sep-2002	7-Oct-2002	7-Oct-2002	15-Oct-2002	21-Oct-2002	28-Oct-2002	28-Oct-2002	3-Nov-2002	3-Nov-2002	12-Nov-2002	12-Nov-2002	18-Nov-2002
Client Sample ID	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY
	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT
	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA
	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM
	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE
Time	-	16:00	-	16:00	-	16:00	-	-	-	16:00	-	16:00	-	16:00	10:59
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (<i>cont'd</i>)															
Barium (Ba)	-	-	-	-	-	0.0293	-	-	-	0.0188	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	0.0000200	-	-	-	0.0000200	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	0.0000200	-	-	-	0.0000200	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	0.0000100	-	-	-	0.0000100	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	8.16	-	-	-	8.94	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	0.000200	-	-	-	0.000200	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	0.0000050	-	-	-	0.0000050	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	0.00191	-	-	-	0.000340	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	0.604	-	-	-	0.0410	-	-	-	-	-
Lead (Pb)	-	-	-	-	-	0.00102	-	-	-	0.0000100	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	0.0000800	-	-	-	0.000530	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	0.990	-	-	-	1.07	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	0.0251	-	-	-	0.00151	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	0.000400	-	-	-	0.000400	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	0.0000500	-	-	-	0.0000500	-	-	-	-	-
Phosphorus (P)	-	-	-	-	-	0.0160	-	-	-	0.00200	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	0.000200	-	-	-	0.000200	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	0.0000200	-	-	-	0.0000200	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	0.0388	-	-	-	0.0355	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	0.0000020	-	-	-	0.0000020	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	0.0000100	-	-	-	0.0000200	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	0.0000430	-	-	-	0.0000070	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	0.000960	-	-	-	0.000320	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	0.00180	-	-	-	1.00E-04	-	-	-	-	-
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E242647	E242646	E242647	E242646	E242647	400187	E242646	E242647
Date	18-Nov-2002	18-Nov-2002	18-Nov-2002	18-Nov-2002	18-Nov-2002	25-Nov-2002	25-Nov-2002	2-Sep-2004	17-May-2006	17-May-2006	15-Jun-2006	15-Jun-2006	19-Jul-2006	19-Jul-2006	19-Jul-2006
Client Sample ID	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE
Time	11:02	11:05	11:08	11:11	16:00	-	16:00	16:00	-	-	11:00	11:15	11:05	10:45	10:50
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Aliquot	Aliquot	Aliquot	Aliquot	Aliquot
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (<i>cont'd</i>)															
Barium (Ba)	-	-	-	-	-	-	-	0.0572	0.0229	0.0534	0.0253	0.0469	0.0314	0.0311	0.0491
Beryllium (Be)	-	-	-	-	-	-	-	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200
Bismuth (Bi)	-	-	-	-	-	-	-	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200
Boron (B)	-	-	-	-	-	-	-	0.00800	0.00900	0.00800	0.00800	0.00800	0.00800	0.00800	0.00800
Cadmium (Cd)	-	-	-	-	-	-	-	0.0000100	0.0000100	0.0000200	0.0000100	0.0000100	0.0000100	0.0000100	0.0000200
Calcium (Ca)	-	-	-	-	-	-	-	19.5	17.4	15.3	17.2	14.8	11.0	22.6	18.7
Chromium (Cr)	-	-	-	-	-	-	-	0.000200	0.000200	0.000200	0.000300	0.000200	0.000200	0.000200	0.000200
Cobalt (Co)	-	-	-	-	-	-	-	0.0000170	0.0000810	1.00E-04	0.0000670	0.0000700	0.0000290	0.0000140	0.0000060
Copper (Cu)	-	-	-	-	-	-	-	0.000750	0.00198	0.00253	0.00170	0.00234	0.000550	0.000640	0.000910
Iron (Fe)	-	-	-	-	-	-	-	0.0390	0.296	0.285	0.0750	0.0830	0.111	0.0150	0.0140
Lead (Pb)	-	-	-	-	-	-	-	0.0000400	0.0000400	0.0000800	0.0000400	0.0000400	0.000140	0.0000200	0.0000200
Lithium (Li)	-	-	-	-	-	-	-	0.000550	0.000550	0.000440	0.000830	0.000630	0.000160	0.000730	0.000450
Magnesium (Mg)	-	-	-	-	-	-	-	3.11	3.29	3.10	3.04	2.20	1.45	4.10	2.73
Manganese (Mn)	-	-	-	-	-	-	-	0.00211	0.00837	0.00992	0.00720	0.00565	0.00719	0.00505	0.00154
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	0.000640	0.000130	0.000330	1.00E-04	0.000480	0.000700	0.000120	0.000520
Nickel (Ni)	-	-	-	-	-	-	-	0.0000700	0.000190	0.000280	0.000140	0.000210	0.0000500	0.0000500	1.00E-04
Phosphorus (P)	-	-	-	-	-	-	-	0.0510	0.0590	0.0580	0.0515	0.0515	0.0510	0.0510	0.0510
Potassium (K)	-	-	-	-	-	-	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Selenium (Se)	-	-	-	-	-	-	-	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200
Sodium (Na)	-	-	-	-	-	-	-	1.95	2.81	1.98	2.45	1.32	1.14	3.32	1.70
Strontium (Sr)	-	-	-	-	-	-	-	0.0681	0.0631	0.0486	0.0754	0.0455	0.0507	0.0981	0.0581
Sulphur (S)	-	-	-	-	-	-	-	7.70	0.500	2.50	0.700	5.20	1.80	1.000	8.20
Tellurium (Te)	-	-	-	-	-	-	-	0.0500	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	0.0000020	0.0000020	0.0000030	0.0000020	0.0000020	0.0000050	0.0000020	0.0000020
Tin (Sn)	-	-	-	-	-	-	-	0.0000500	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100
Titanium (Ti)	-	-	-	-	-	-	-	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300
Uranium (U)	-	-	-	-	-	-	-	0.0000200	0.0000870	0.0000370	0.0000490	0.0000250	0.0000290	0.0000690	0.0000140
Vanadium (V)	-	-	-	-	-	-	-	0.0000900	0.000770	0.000310	0.000930	0.000190	0.000230	0.000620	0.0000600
Zinc (Zn)	-	-	-	-	-	-	-	0.00160	0.000700	0.00120	0.001000	0.00160	0.000200	1.00E-04	0.000300
Zirconium (Zr)	-	-	-	-	-	-	-	0.00500	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	E242646	E242646	E242647	E242647	E242647	400187	E242646	E242647	400187	E242646	E242647	400187	E242646	E242647
Date	14-Aug-2006	14-Aug-2006	23-Aug-2006	14-Aug-2006	23-Aug-2006	23-Aug-2006	6-Sep-2006	6-Sep-2006	6-Sep-2006	16-Oct-2006	16-Oct-2006	16-Oct-2006	14-Nov-2006	14-Nov-2006	14-Nov-2006
Client Sample ID	TELKWA R AT VILLAGE	TENAS CREEK	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE
Time	11:20	11:00	12:45	11:05	15:20	15:25	-	-	-	-	-	-	-	-	-
QAQC	Aliquot	Aliquot	Regular	Aliquot	Regular	Replicate	Aliquot	Aliquot	Aliquot	Aliquot	Aliquot	Aliquot	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)															
Barium (Ba)	0.0302	0.0326	0.0350	0.0544	0.0521	0.0548	0.0396	0.0429	0.0626	0.0420	0.0368	0.0617	0.0402	0.0335	0.0562
Beryllium (Be)	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200
Bismuth (Bi)	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200
Boron (B)	0.00800	0.0160	0.01000	0.00900	0.00800	0.00800	0.00800	0.0160	0.00800	0.00800	0.00900	0.00800	0.00800	0.0170	0.00800
Cadmium (Cd)	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000200	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100
Calcium (Ca)	8.88	19.4	27.6	17.0	20.3	20.9	10.9	29.1	21.1	13.1	24.6	19.6	18.6	29.6	25.6
Chromium (Cr)	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Cobalt (Co)	0.0000130	0.0000050	0.0000060	0.0000050	0.0000050	0.0000050	0.0000790	0.0000070	0.0000050	0.0000090	0.0000130	0.0000050	0.0000230	0.0000090	0.0000050
Copper (Cu)	0.000380	0.000530	0.000610	0.000730	0.000860	0.000800	0.000680	0.000680	0.000660	0.000360	0.000540	0.000500	0.000440	0.000600	0.000600
Iron (Fe)	0.0910	0.00600	0.0210	0.00500	0.0130	0.0220	0.291	0.0220	0.0110	0.0910	0.0130	0.00500	0.189	0.0180	0.00600
Lead (Pb)	0.000120	0.0000100	0.0000100	0.0000100	0.0000200	0.0000200	0.000310	0.0000100	0.0000100	0.0000500	0.0000100	0.0000100	0.0000600	0.0000100	0.0000100
Lithium (Li)	0.000180	0.000620	0.000690	0.000460	0.000560	0.000500	0.000270	0.000670	0.000600	0.000300	0.000550	0.000420	0.000380	0.000560	0.000430
Magnesium (Mg)	1.14	3.62	4.89	2.49	2.92	3.00	1.39	5.24	3.12	1.83	4.62	3.08	2.80	5.56	4.19
Manganese (Mn)	0.00559	0.00270	0.00234	0.00109	0.00207	0.00225	0.0160	0.00305	0.00166	0.00950	0.00346	0.00147	0.0180	0.00293	0.00108
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.000570	0.000130	0.000120	0.000590	0.000510	0.000530	0.000590	0.000150	0.000590	0.000650	0.000130	0.000430	0.000510	0.000150	0.000430
Nickel (Ni)	0.0000500	0.0000500	0.0000500	0.0000500	0.0000500	0.0000500	0.000140	0.0000600	0.0000500	0.0000500	0.000160	0.0000800	0.000220	0.000160	0.000180
Phosphorus (P)	0.0515	0.0525	0.0520	0.0510	0.0515	0.0520	0.0525	0.0510	0.0510	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
Potassium (K)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Selenium (Se)	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200
Sodium (Na)	0.910	3.12	3.77	1.59	1.89	1.87	1.11	4.11	1.95	1.53	3.85	2.02	2.23	4.48	2.97
Strontium (Sr)	0.0433	0.0980	0.109	0.0620	0.0599	0.0612	0.0511	0.129	0.0713	0.0648	0.109	0.0705	0.0740	0.117	0.0758
Sulphur (S)	1.90	1.30	1.30	9.40	8.60	8.60	1.70	1.40	8.30	3.00	1.80	10.9	2.30	1.70	9.10
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000030	0.0000020	0.0000040	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020
Tin (Sn)	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000600	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100
Titanium (Ti)	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300
Uranium (U)	0.0000220	0.0000830	0.000104	0.0000160	0.0000160	0.0000160	0.0000430	0.000144	0.0000160	0.0000450	0.000131	0.0000160	0.0000590	0.000167	0.0000330
Vanadium (V)	0.000130	0.000590	0.000650	0.0000600	1.00E-04	0.000110	0.000510	0.000590	0.000110	0.000210	0.000600	0.0000800	0.000210	0.000390	0.0000600
Zinc (Zn)	0.000300	1.00E-04	1.00E-04	0.000400	0.000600	0.00220	0.00220	1.00E-04	1.00E-04	1.00E-04	1.00E-04	0.000200	0.000900	1.00E-04	0.000700
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	-	-	-	-	-	-	-	-	-	0.0230	0.00500	0.00500	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	E242646	E242647	400187	E242646	E242647	400187	E242646	E242647	400187	E242646	E242647	400435	400435	E242646
Date	18-Dec-2006	18-Dec-2006	18-Dec-2006	22-Jan-2007	22-Jan-2007	22-Jan-2007	12-Feb-2007	12-Feb-2007	12-Feb-2007	19-Mar-2007	19-Mar-2007	19-Mar-2007	26-Sep-2007	26-Sep-2007	17-Dec-2007
Client Sample ID	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	TENAS CREEK
Time	13:30	12:30	13:05	12:15	10:54	11:15	12:33	11:34	11:55	13:10	12:25	12:05	1:30	1:31	13:30
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Aliquot	Aliquot	Aliquot	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)															
Barium (Ba)	0.0425	0.0367	0.0591	0.0436	0.0399	0.0641	0.0414	0.0375	0.0625	0.0393	0.0386	0.0645	0.0262	0.0257	0.0354
Beryllium (Be)	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000300	0.0000200	0.0000100
Bismuth (Bi)	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000050
Boron (B)	0.00800	0.0180	0.00800	0.00800	0.0230	0.00800	0.00800	0.0210	0.00800	0.00800	0.00800	0.00800	0.00900	0.00800	0.0130
Cadmium (Cd)	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000400	0.0000100	0.0000100	0.0000100	0.0000050
Calcium (Ca)	19.7	29.9	24.9	19.0	31.0	25.8	18.9	31.3	26.3	17.8	32.2	25.6	11.0	11.0	-
Chromium (Cr)	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Cobalt (Co)	0.0000050	0.0000080	0.0000050	0.0000210	0.0000350	0.0000080	0.0000110	0.0000150	0.0000050	0.0000290	0.0000550	0.0000050	0.0000470	0.0000470	0.0000650
Copper (Cu)	0.000510	0.00258	0.000990	0.000570	0.000620	0.000590	0.000560	0.000660	0.000590	0.000410	0.000790	0.000330	0.000880	0.000880	0.00117
Iron (Fe)	0.138	0.0170	0.00600	0.189	0.0170	0.01000	0.305	0.0140	0.00800	0.473	0.0320	0.0110	0.0930	0.0930	0.0480
Lead (Pb)	0.0000600	0.0000100	0.0000100	0.0000700	0.0000100	0.0000300	0.0000400	0.0000100	0.0000100	0.0000600	0.0000500	0.0000100	0.0000400	0.0000500	0.0000070
Lithium (Li)	0.000270	0.000580	0.000390	0.000300	0.000600	0.000710	0.000140	0.000240	0.000160	0.000290	0.000400	0.000300	0.000330	0.000260	0.000600
Magnesium (Mg)	3.19	5.96	4.40	2.99	6.04	4.53	3.01	6.14	4.67	2.89	6.09	4.68	1.53	1.50	-
Manganese (Mn)	0.00338	0.00190	0.00110	0.00479	0.00154	0.000913	0.00796	0.00148	0.000612	0.0150	0.00266	0.000811	0.0252	0.0245	0.00402
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.000440	0.000150	0.000430	0.000410	0.000150	0.000420	0.000880	0.000180	0.000460	0.000440	0.000180	0.000510	0.000560	0.000520	0.000120
Nickel (Ni)	0.0000500	0.0000500	0.0000500	0.000290	0.000350	0.000270	0.0000900	0.000180	0.000130	0.0000500	0.000160	0.000130	0.0000500	0.0000500	0.000170
Phosphorus (P)	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.0525	0.0515	0.00300
Potassium (K)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	-
Selenium (Se)	0.000300	0.000300	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000400	0.000500	0.000500	0.000400	0.000200	0.0000400
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.34
Silver (Ag)	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000200	0.0000050
Sodium (Na)	2.55	4.79	3.20	2.30	4.72	3.35	2.44	5.11	3.68	2.46	5.31	3.79	1.65	1.61	-
Strontium (Sr)	0.0753	0.121	0.0771	0.0755	0.125	0.0800	0.0767	0.130	0.0808	0.0720	0.124	0.0795	0.0500	0.0468	0.118
Sulphur (S)	2.40	2.00	8.80	2.20	2.10	8.40	2.00	2.00	8.10	1.80	2.20	7.30	1.40	1.40	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020
Tin (Sn)	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000200	0.0000100	0.0000100	0.0000100	0.0000100	0.0000400	0.0000100	0.0000100	0.0000100	0.0000100
Titanium (Ti)	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.00300	0.000800
Uranium (U)	0.0000680	0.000196	0.0000420	0.0000650	0.000217	0.0000510	0.0000680	0.000234	0.0000620	0.0000670	0.000251	0.0000770	0.0000390	0.0000350	0.000161
Vanadium (V)	0.000200	0.000350	0.0000600	0.000190	0.000330	0.0000600	0.000120	0.000200	0.0000600	0.000350	0.000420	0.0000600	0.000400	0.000410	0.000300
Zinc (Zn)	1.00E-04	1.00E-04	1.00E-04	0.000500	0.000200	0.000500	1.00E-04	0.000400	0.000300	1.00E-04	0.001000	1.00E-04	0.000600	0.000500	0.000300
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0163
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000800
Arsenic (As)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000310
Barium (Ba)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0335
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000100
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000050
Boron (B)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0130
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000050
Calcium (Ca)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26.8
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000300
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000650
Copper (Cu)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00109
Iron (Fe)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0320

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E242647	400187	E242646	400187	E242646	400187	E242646	E242647	400187	E242646	E242646	E242647	E242647	400187	E242646
Date	17-Dec-2007	22-Jan-2008	22-Jan-2008	18-Mar-2008	18-Mar-2008	15-Apr-2008	15-Apr-2008	15-Apr-2008	17-Jun-2008	17-Jun-2008	17-Jun-2008	17-Jun-2008	17-Jun-2008	21-Jul-2008	21-Jul-2008
Client Sample ID	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	TELKWA R AT VILLAGE	TENAS CREEK	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK
Time	13:00	13:00	13:30	13:00	13:30	14:25	15:00	14:55	12:30	12:40	15:30	12:00	15:00	13:15	14:10
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)															
Barium (Ba)	0.0671	0.0504	0.0403	0.0464	0.0414	0.0438	0.0431	0.0783	0.0246	0.0250	0.0274	0.0558	0.0560	0.0273	0.0225
Beryllium (Be)	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100
Bismuth (Bi)	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000070	0.0000050
Boron (B)	0.00500	0.00500	0.0170	0.00500	0.0180	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Cadmium (Cd)	0.0000050	0.0000050	0.0000050	0.0000070	0.0000050	0.0000060	0.0000100	0.0000100	0.0000050	0.0000050	0.0000050	0.0000090	0.0000070	0.0000090	0.0000050
Calcium (Ca)	-	-	-	20.7	-	19.8	29.7	29.7	8.96	16.6	16.9	15.9	16.1	7.98	14.5
Chromium (Cr)	1.00E-04	1.00E-04	0.000300	1.00E-04	0.000200	0.000200	0.000400	1.00E-04	1.00E-04	0.000300	0.000300	1.00E-04	1.00E-04	1.00E-04	0.000200
Cobalt (Co)	0.0000170	0.0000370	0.0000510	0.0000200	0.0000600	0.0000490	0.000301	0.0000270	0.0000400	0.0000370	0.0000360	0.0000310	0.0000300	0.0000620	0.0000150
Copper (Cu)	0.00126	0.000510	0.000990	0.000490	0.000770	0.000870	0.00221	0.000970	0.001000	0.00130	0.00150	0.00138	0.00139	0.00114	0.000620
Iron (Fe)	0.0180	0.115	0.0320	0.211	0.0200	0.329	0.308	0.0260	0.104	0.0410	0.0410	0.0480	0.0480	0.162	0.0180
Lead (Pb)	0.0000050	0.0000360	0.0000130	0.0000180	0.0000050	0.0000320	0.000107	0.0000080	0.0000560	0.0000110	0.0000210	0.0000160	0.0000160	0.000248	0.0000110
Lithium (Li)	0.000600	0.000500	0.000600	0.000500	0.000600	0.000500	0.000700	0.000600	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000600
Magnesium (Mg)	-	-	-	3.76	-	3.78	6.28	6.65	1.45	3.02	3.08	2.84	2.88	1.13	2.69
Manganese (Mn)	0.000750	0.0142	0.00414	0.0116	0.00498	0.0161	0.0145	0.00186	0.00590	0.00280	0.00290	0.00263	0.00262	0.00868	0.00250
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.000450	0.000530	0.000170	0.000500	0.000190	0.000430	0.000130	0.000540	0.000380	0.0000900	1.00E-04	0.000500	0.000510	0.000610	0.0000800
Nickel (Ni)	0.000170	0.000240	0.000320	0.000270	0.000160	0.000180	0.000840	0.000200	1.00E-04	0.000130	0.000210	0.000180	0.000240	0.0000700	0.0000500
Phosphorus (P)	0.00300	0.00700	0.00700	0.00600	0.00600	0.00800	0.0180	0.00300	0.00300	0.00500	0.00300	0.00200	0.00200	0.00600	0.00400
Potassium (K)	-	-	-	0.330	-	0.370	0.310	0.420	0.180	0.170	0.190	0.300	0.300	0.210	0.160
Selenium (Se)	0.0000700	0.0000700	0.0000500	0.0000800	0.0000400	0.0000600	0.0000400	0.0000700	0.0000500	0.0000400	0.0000400	0.0000600	0.0000600	0.0000800	0.0000400
Silicon (Si)	2.69	3.62	3.65	3.58	3.40	3.98	3.90	2.74	2.38	3.20	3.26	2.40	2.44	2.26	3.33
Silver (Ag)	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000150	0.0000050	0.0000050	0.0000050
Sodium (Na)	-	-	-	3.05	-	2.99	4.67	4.76	1.16	2.52	2.57	1.71	1.74	0.890	2.34
Strontium (Sr)	0.0829	0.0925	0.133	0.0914	0.143	0.0875	0.133	0.107	0.0445	0.0765	0.0818	0.0554	0.0573	0.0400	0.0683
Sulphur (S)	-	-	-	3.00	-	3.00	3.00	10.00	3.00	3.00	3.00	5.00	5.00	3.00	3.00
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000030	0.0000020	0.0000030	0.0000020
Tin (Sn)	0.0000100	0.0000200	0.0000200	0.0000100	0.0000300	0.0000100	0.0000100	0.0000100	0.0000200	0.0000300	0.0000200	0.0000200	0.0000100	0.0000600	0.0000300
Titanium (Ti)	0.000700	0.00120	0.000500	0.001000	0.000800	0.00110	0.00420	0.000500	0.00150	0.000500	0.000500	0.000500	0.000600	0.00440	0.000500
Uranium (U)	0.0000760	0.0000890	0.000213	0.0000900	0.000270	0.0000910	0.000253	0.000142	0.0000290	0.0000510	0.0000560	0.0000250	0.0000240	0.0000320	0.0000380
Vanadium (V)	0.000200	0.000300	0.000200	0.000200	0.000200	0.000300	0.000800	0.000200	0.000500	0.000800	0.000800	0.000200	0.000200	0.000400	0.000700
Zinc (Zn)	0.000500	0.000400	0.000500	0.000300	0.000300	0.000500	0.00150	0.000400	0.000600	0.000400	0.000500	0.000800	0.000800	0.000900	0.000200
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	0.00830	0.00550	0.00820	0.00460	0.0125	0.0175	0.0315	0.00580	0.0239	0.0164	0.0160	0.00940	0.00930	0.0176	0.00840
Antimony (Sb)	0.0000600	0.0000400	0.0000800	0.0000400	0.0000800	0.0000400	0.0000800	0.0000600	0.0000400	0.000110	0.000120	0.0000800	0.0000800	0.0000400	0.000190
Arsenic (As)	0.000130	0.000160	0.000290	0.000180	0.000290	0.000230	0.000330	0.000130	0.000190	0.000370	0.000400	0.000180	0.000190	0.000110	0.000400
Barium (Ba)	0.0641	0.0458	0.0385	0.0460	0.0417	0.0430	0.0394	0.0776	0.0245	0.0240	0.0243	0.0540	0.0530	0.0258	0.0237
Beryllium (Be)	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100
Bismuth (Bi)	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Boron (B)	0.00500	0.00500	0.0150	0.00500	0.0170	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Cadmium (Cd)	0.0000060	0.0000050	0.0000050	0.0000050	0.0000050	0.0000070	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000090	0.0000080	0.0000050	0.0000050
Calcium (Ca)	24.2	20.3	29.6	20.4	31.9	21.0	29.7	32.1	8.93	15.8	16.4	15.7	15.4	8.83	16.4
Chromium (Cr)	1.00E-04	1.00E-04	0.000200	1.00E-04	0.000200	0.000200	0.000200	1.00E-04	1.00E-04	0.000200	0.000200	1.00E-04	1.00E-04	1.00E-04	0.000200
Cobalt (Co)	0.0000180	0.0000130	0.0000440	0.0000240	0.0000650	0.0000300	0.0000830	0.0000200	0.0000170	0.0000310	0.0000290	0.0000250	0.0000180	0.0000330	0.0000180
Copper (Cu)	0.00124	0.000380	0.000880	0.000490	0.000750	0.000860	0.00159	0.000980	0.000840	0.00110	0.00136	0.00130	0.00126	0.000470	0.000580
Iron (Fe)	0.0110	0.0680	0.0190	0.139	0.01000	0.213	0.0230	0.00800	0.0340	0.0120	0.0130	0.01000	0.00900	0.0240	0.00700

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	E242646	E242647	400187	400187	E242646	E242647	E242647	400187	E242646	E242647	400187	E242646	E242647	400187
Date	18-Aug-2008	18-Aug-2008	18-Aug-2008	15-Sep-2008	15-Sep-2008	15-Sep-2008	15-Sep-2008	15-Sep-2008	20-Oct-2008	20-Oct-2008	20-Oct-2008	19-Nov-2008	19-Nov-2008	19-Nov-2008	15-Dec-2008
Client Sample ID	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE
Time	12:50	13:55	13:30	10:55	14:05	11:45	11:30	13:30	12:50	12:00	12:25	12:25	13:25	13:00	11:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)															
Barium (Ba)	0.0404	0.0296	0.0441	0.0380	0.0372	0.0311	0.0576	0.0565	0.0429	0.0325	0.0578	0.0374	0.0338	0.0575	0.0395
Beryllium (Be)	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100
Bismuth (Bi)	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Boron (B)	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Cadmium (Cd)	0.0000130	0.0000050	0.0000180	0.0000080	0.0000060	0.0000050	0.0000170	0.0000130	0.0000060	0.0000050	0.0000080	0.0000050	0.0000050	0.0000070	0.0000080
Calcium (Ca)	8.37	19.4	16.5	11.7	11.4	21.1	18.6	19.0	14.4	24.5	19.8	13.6	23.4	19.2	17.2
Chromium (Cr)	0.000200	0.000200	1.00E-04	1.00E-04	1.00E-04	0.000200	1.00E-04	1.00E-04	1.00E-04	0.000200	1.00E-04	1.00E-04	0.000300	0.000200	0.000200
Cobalt (Co)	0.000207	0.0000190	0.0000130	0.0000330	0.0000370	0.0000150	0.0000170	0.0000150	0.0000190	0.0000430	0.0000110	0.0000330	0.000101	0.0000230	0.0000390
Copper (Cu)	0.00115	0.000630	0.000760	0.000650	0.000580	0.000610	0.00107	0.00105	0.001000	0.000640	0.000730	0.000780	0.00172	0.00153	0.00106
Iron (Fe)	0.469	0.0170	0.0140	0.151	0.150	0.0120	0.0200	0.0160	0.144	0.0240	0.0120	0.225	0.0860	0.0390	0.233
Lead (Pb)	0.000371	0.0000050	0.0000080	0.000144	0.000150	0.0000050	0.0000110	0.0000100	0.0000300	0.0000060	0.0000050	0.0000320	0.0000070	0.0000140	0.0000440
Lithium (Li)	0.000600	0.000600	0.000500	0.000500	0.000500	0.000600	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500
Magnesium (Mg)	1.23	3.65	2.38	1.68	1.64	4.02	3.03	3.12	2.33	4.79	3.53	2.25	4.62	3.72	2.86
Manganese (Mn)	0.0147	0.00203	0.00142	0.00653	0.00675	0.001000	0.00175	0.00160	0.0147	0.00406	0.00142	0.0189	0.00502	0.00199	0.0199
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.000590	0.000110	0.000650	0.000640	0.000630	1.00E-04	0.000500	0.000490	0.000610	0.000130	0.000470	0.000500	0.000120	0.000390	0.000460
Nickel (Ni)	0.000250	0.000770	0.000160	0.0000500	0.0000400	0.0000600	0.000190	0.000220	0.0000900	0.000120	0.000140	1.00E-04	0.000320	0.000250	0.000210
Phosphorus (P)	0.0170	0.00400	0.00200	0.00900	0.00800	0.00400	0.00300	0.00300	0.00400	0.00400	0.00400	0.00800	0.00600	0.00600	0.00500
Potassium (K)	0.350	0.200	0.340	0.280	0.280	0.190	0.330	0.330	0.280	0.220	0.310	0.250	0.200	0.290	0.270
Selenium (Se)	0.0000600	0.0000400	0.0000700	0.0000900	0.0000800	0.0000500	0.0000900	0.0000800	0.0000800	0.0000400	0.0000500	0.0000800	0.0000400	0.0000700	0.0000700
Silicon (Si)	1.69	2.69	1.96	2.52	2.38	3.13	2.52	2.52	2.83	3.23	2.53	3.57	3.55	2.92	4.45
Silver (Ag)	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Sodium (Na)	0.860	2.90	1.58	1.40	1.32	3.42	1.83	1.87	1.66	3.53	2.14	1.77	3.60	2.31	2.14
Strontium (Sr)	0.0429	0.0905	0.0537	0.0561	0.0556	0.0951	0.0638	0.0630	0.0682	0.107	0.0664	0.0641	0.103	0.0666	0.0791
Sulphur (S)	3.00	3.00	9.00	3.00	3.00	3.00	8.00	8.00	3.00	3.00	7.00	3.00	3.00	5.00	3.00
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	0.0000060	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020
Tin (Sn)	0.0000200	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000400	0.0000200	0.0000100	0.0000400	0.0000300	0.0000100	0.0000100	0.0000100	0.0000400
Titanium (Ti)	0.0262	0.000500	0.000500	0.00320	0.00340	0.000500	0.000500	0.000500	0.001000	0.000900	0.000600	0.00140	0.00160	0.00140	0.00150
Uranium (U)	0.0000360	0.0000530	0.0000140	0.0000240	0.0000220	0.0000720	0.0000230	0.0000210	0.0000530	0.000122	0.0000310	0.0000490	0.000112	0.0000350	0.0000610
Vanadium (V)	0.001000	0.000800	0.000200	0.000300	0.000300	0.000500	0.000200	0.000200	0.000500	0.000200	0.000200	0.000200	0.000300	0.000200	0.000300
Zinc (Zn)	0.00230	0.000200	0.00120	0.000600	0.000600	1.00E-04	0.000900	0.000900	0.000300	0.000400	0.000500	0.000400	0.000500	0.000600	0.000600
Zirconium (Zr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Aluminum (Al)	0.0972	0.0155	0.0116	0.0388	0.0445	0.00790	0.00690	0.00700	0.00810	0.00810	0.00440	0.0295	0.0459	0.0181	0.0325
Antimony (Sb)	0.0000300	0.000190	0.0000900	0.0000400	0.0000400	0.000150	0.0000800	0.0000800	0.0000400	0.000110	0.0000700	0.0000400	0.0000900	0.0000700	0.0000400
Arsenic (As)	0.000120	0.000390	0.000140	0.000130	0.0000900	0.000370	0.000170	0.000160	0.000170	0.000310	0.000140	0.000190	0.000330	0.000160	0.000230
Barium (Ba)	0.0292	0.0282	0.0434	0.0357	0.0357	0.0307	0.0552	0.0541	0.0432	0.0341	0.0607	0.0368	0.0338	0.0584	0.0397
Beryllium (Be)	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100
Bismuth (Bi)	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Boron (B)	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Cadmium (Cd)	0.0000070	0.0000050	0.0000150	0.0000090	0.0000100	0.0000050	0.0000130	0.0000150	0.0000080	0.0000050	0.0000070	0.0000070	0.0000050	0.0000090	0.0000070
Calcium (Ca)	8.08	18.9	15.7	11.6	11.9	21.0	18.1	18.0	14.3	25.3	20.2	14.0	23.7	19.6	16.8
Chromium (Cr)	1.00E-04	0.000200	0.000200	1.00E-04	1.00E-04	0.000200	1.00E-04	1.00E-04	1.00E-04	0.000300	1.00E-04	1.00E-04	0.000300	1.00E-04	0.000200
Cobalt (Co)	0.0000300	0.0000140	0.0000090	0.0000210	0.0000220	0.0000200	0.0000110	0.0000100	0.0000130	0.0000370	0.0000120	0.0000310	0.0000950	0.0000170	0.0000360
Copper (Cu)	0.000500	0.000580	0.000710	0.000600	0.000590	0.000650	0.000970	0.000990	0.000510	0.000680	0.000800	0.000810	0.00170	0.00157	0.00106
Iron (Fe)	0.0850	0.00700	0.00500	0.0690	0.0850	0.0130	0.00600	0.00700	0.113	0.0130	0.00500	0.174	0.0780	0.0240	0.191

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E242646	E242647	400187	400187	400434	400435	400435	400434	400434	400434	400434	400435	400435	400435	400435	400435
Date	15-Dec-2008	15-Dec-2008	17-Feb-2009	15-Mar-2009	29-Aug-2012	29-Aug-2012	29-Aug-2012	6-Sep-2012	18-Sep-2012	26-Sep-2012	6-Sep-2012	18-Sep-2012	26-Sep-2012	26-Sep-2012	26-Sep-2012	26-Sep-2012
Client Sample ID	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS
Time	12:15	11:50	13:10	11:05	14:00	-	14:45	14:00	14:00	13:40	14:30	14:40	9:50	11:50	12:40	
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Replicate-First
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals (cont'd)																
Barium (Ba)	0.0262	0.0568	0.0407	0.0369	-	0.0223	-	-	0.0229	-	-	0.0220	-	-	-	-
Beryllium (Be)	0.0000100	0.0000100	0.0000100	0.0000100	-	1.00E-04	-	-	1.00E-04	-	-	1.00E-04	-	-	-	-
Bismuth (Bi)	0.0000050	0.0000050	0.0000050	0.0000050	-	0.001000	-	-	0.001000	-	-	0.001000	-	-	-	-
Boron (B)	0.0500	0.0500	0.0500	0.0500	-	0.0500	-	-	0.0500	-	-	0.0500	-	-	-	-
Cadmium (Cd)	0.0000050	0.0000070	0.0000110	0.0000050	-	0.0000100	-	-	0.0000100	-	-	0.0000100	-	-	-	-
Calcium (Ca)	19.6	21.5	16.4	17.7	-	7.85	-	-	8.76	-	-	8.27	-	-	-	-
Chromium (Cr)	0.000300	1.00E-04	1.00E-04	1.00E-04	-	0.001000	-	-	0.001000	-	-	0.001000	-	-	-	-
Cobalt (Co)	0.0000560	0.0000220	0.0000170	0.0000090	-	0.000500	-	-	0.000500	-	-	0.000500	-	-	-	-
Copper (Cu)	0.00144	0.00162	0.000780	0.000400	-	0.000750	-	-	0.000680	-	-	0.000640	-	-	-	-
Iron (Fe)	0.0590	0.0310	0.253	0.149	-	0.136	-	-	0.106	-	-	0.104	-	-	-	-
Lead (Pb)	0.0000110	0.0000090	0.0000510	0.0000160	-	0.000200	-	-	0.000200	-	-	0.000200	-	-	-	-
Lithium (Li)	0.000500	0.000500	0.000500	0.000500	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	3.69	4.16	2.91	2.92	-	0.900	-	-	1.000	-	-	0.963	-	-	-	-
Manganese (Mn)	0.00297	0.00173	0.00553	0.00566	-	0.01000	-	-	0.0177	-	-	0.0211	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.000120	0.000400	0.000500	0.000490	-	0.001000	-	-	0.001000	-	-	0.001000	-	-	-	-
Nickel (Ni)	0.000320	0.000240	0.000170	0.0000400	-	0.001000	-	-	0.001000	-	-	0.001000	-	-	-	-
Phosphorus (P)	0.00400	0.00400	0.00200	0.00500	-	0.00890	-	-	0.00695	-	-	0.00770	-	-	-	-
Potassium (K)	0.170	0.320	0.280	0.270	-	0.249	-	-	0.275	-	-	0.251	-	-	-	-
Selenium (Se)	0.0000400	0.0000500	0.0000900	0.0000900	-	1.00E-04	-	-	1.00E-04	-	-	1.00E-04	-	-	-	-
Silicon (Si)	3.23	3.08	3.65	3.90	-	1.72	-	-	1.78	-	-	1.64	-	-	-	-
Silver (Ag)	0.0000050	0.0000050	0.0000050	0.0000050	-	0.0000200	-	-	0.0000200	-	-	0.0000200	-	-	-	-
Sodium (Na)	2.86	2.61	2.27	2.19	-	0.931	-	-	1.02	-	-	0.998	-	-	-	-
Strontium (Sr)	0.0859	0.0752	0.0778	0.0812	-	0.0330	-	-	0.0356	-	-	0.0345	-	-	-	-
Sulphur (S)	3.00	6.00	3.00	3.00	-	3.00	-	-	3.00	-	-	3.00	-	-	-	-
Tellurium (Te)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	0.0000020	0.0000020	0.0000020	0.0000020	-	0.0000500	-	-	0.0000500	-	-	0.0000500	-	-	-	-
Tin (Sn)	0.0000100	0.0000100	0.0000500	0.0000100	-	0.00500	-	-	0.00500	-	-	0.00500	-	-	-	-
Titanium (Ti)	0.00130	0.00140	0.000500	0.000500	-	0.00500	-	-	0.00500	-	-	0.00500	-	-	-	-
Uranium (U)	0.000102	0.0000460	0.0000630	0.0000630	-	1.00E-04	-	-	1.00E-04	-	-	1.00E-04	-	-	-	-
Vanadium (V)	0.000300	0.000200	0.000300	0.000200	-	0.00500	-	-	0.00500	-	-	0.00500	-	-	-	-
Zinc (Zn)	0.000300	0.000600	0.000500	0.000400	-	0.00500	-	-	0.00500	-	-	0.00500	-	-	-	-
Zirconium (Zr)	-	-	-	-	-	0.000500	-	-	0.000500	-	-	0.000500	-	-	-	-
Dissolved Metals																
Aluminum (Al)	0.0346	0.0193	0.0115	0.00550	-	-	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	0.0000700	0.0000600	0.0000400	0.0000500	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	0.000280	0.000180	0.000170	0.000140	-	-	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	0.0269	0.0589	0.0408	0.0378	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	0.0000100	0.0000100	0.0000100	0.0000100	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)	0.0000050	0.0000050	0.0000050	0.0000050	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	0.0500	0.0500	0.0500	0.0500	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	0.0000050	0.0000060	0.0000080	0.0000050	-	-	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	19.2	21.2	16.5	18.0	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	0.000300	1.00E-04	1.00E-04	1.00E-04	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	0.0000530	0.0000210	0.0000120	0.0000100	-	-	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	0.00140	0.00171	0.000820	0.000330	-	-	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	0.0510	0.0250	0.192	0.136	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435
Date	26-Sep-2012
Client Sample ID	BULKLEY R. IDZ AT SMITHERS
Time	13:10
QAQC	Replicate-Second
ALS Sample ID	-
Total Metals (cont'd)	
Barium (Ba)	-
Beryllium (Be)	-
Bismuth (Bi)	-
Boron (B)	-
Cadmium (Cd)	-
Calcium (Ca)	-
Chromium (Cr)	-
Cobalt (Co)	-
Copper (Cu)	-
Iron (Fe)	-
Lead (Pb)	-
Lithium (Li)	-
Magnesium (Mg)	-
Manganese (Mn)	-
Mercury (Hg)	-
Molybdenum (Mo)	-
Nickel (Ni)	-
Phosphorus (P)	-
Potassium (K)	-
Selenium (Se)	-
Silicon (Si)	-
Silver (Ag)	-
Sodium (Na)	-
Strontium (Sr)	-
Sulphur (S)	-
Tellurium (Te)	-
Thallium (Tl)	-
Tin (Sn)	-
Titanium (Ti)	-
Uranium (U)	-
Vanadium (V)	-
Zinc (Zn)	-
Zirconium (Zr)	-
Dissolved Metals	
Aluminum (Al)	-
Antimony (Sb)	-
Arsenic (As)	-
Barium (Ba)	-
Beryllium (Be)	-
Bismuth (Bi)	-
Boron (B)	-
Cadmium (Cd)	-
Calcium (Ca)	-
Chromium (Cr)	-
Cobalt (Co)	-
Copper (Cu)	-
Iron (Fe)	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	400187	400434	400435	400434	400435	400187	400434	400435	400434	400434	400435	400435	400187	400434
Date	20-Mar-1974	4-Jun-1974	25-Jun-1974	25-Jun-1974	10-Jul-1974	10-Jul-1974	17-Sep-1974	24-Sep-1974	24-Sep-1974	21-May-1975	21-May-1975	21-May-1975	21-May-1975	2-Jun-1975	25-Jun-1975
Client Sample ID	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE
Time	8:30	17:05	11:45	11:40	10:10	10:00	22:15	15:30	15:40	9:15	9:20	9:20	9:30	17:45	10:30
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	0.001000	-	-	-	-	-	0.001000	-	-	0.001000	-	0.001000	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	3.40	1.84	-	-	-	-	1.04	-	-	1.60	-	1.60	-	1.40	7.60
Manganese (Mn)	0.0200	-	-	-	-	-	0.0200	-	-	0.0200	-	0.0200	-	-	-
Mercury (Hg)	0.0000500	-	-	-	-	-	0.0000500	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	0.01000	-	0.01000	-	-	-
Potassium (K)	0.300	-	-	-	-	-	0.200	-	-	-	-	-	-	0.200	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	2.80	-	-	-	-	-	1.000	-	-	1.60	-	1.50	-	1.60	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	0.00500	-	-	-	-	-	0.00500	-	-	0.00500	-	0.00500	-	-	-
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	40.0	-	20.0	-	80.0
F. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	20.0	-	20.0	-	20.0
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187
Date	25-Jun-1975	17-Jul-1975	7-Oct-1975	11-Feb-1985	11-Mar-1985	17-Apr-1985	13-May-1985	12-Jun-1985	9-Jul-1985	13-Aug-1985	10-Sep-1985	8-Oct-1985	5-Nov-1985	10-Dec-1985	8-Jan-1986
Client Sample ID	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE
Time	10:45	16:30	12:00	11:00	-	13:45	8:00	14:30	10:30	14:00	11:10	9:00	8:30	7:00	13:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	-	-	-	0.001000	0.001000	0.1000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	0.950	1.20	0.890	3.11	3.00	3.11	2.56	1.34	1.10	1.08	1.74	2.13	2.50	2.84	2.94
Manganese (Mn)	-	-	-	0.01000	0.01000	0.0200	0.0200	0.01000	0.01000	0.01000	0.01000	0.0200	0.0200	0.01000	0.01000
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Nickel (Ni)	-	-	-	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Potassium (K)	-	-	0.300	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	0.900	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Zinc (Zn)	-	-	-	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
Bacteria															
Total Coli (MPN)	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187	400187
Date	11-Feb-1986	19-Mar-1986	7-Apr-1986	7-May-1986	2-Jun-1986	8-Jul-1986	5-Aug-1986	4-Sep-1986	4-Oct-1986	9-Oct-1986	12-Nov-1986	10-Dec-1986	12-Jan-1987	18-Feb-1987	26-Mar-1987
Client Sample ID	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE
Time	12:00	9:30	14:00	9:00	9:30	14:00	10:00	9:30	18:00	8:30	10:30	9:30	9:45	9:15	8:15
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000	-	0.001000	0.001000	0.001000	0.001000	0.001000	0.001000
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	3.36	3.31	3.18	2.26	1.24	1.13	1.10	0.960	-	1.23	2.06	2.67	2.91	3.01	3.32
Manganese (Mn)	0.01000	0.01000	0.0200	0.0200	0.01000	0.01000	0.01000	0.0200	-	0.01000	0.0200	0.01000	0.01000	0.01000	0.01000
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	-	0.01000	0.01000	0.0200	0.01000	0.01000	0.01000
Nickel (Ni)	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	-	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000	-	0.01000	0.01000	0.01000	0.01000	0.01000	0.01000
Zinc (Zn)	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	-	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	400187	400187	400187	400187	400434	400434	400434	400435	400435	400435	400187	400434	400434	400435
Date	21-Apr-1987	19-May-1987	17-Jun-1987	14-Jul-1987	11-Aug-1987	16-Aug-1987	23-Aug-1987	31-Aug-1987	16-Aug-1987	23-Aug-1987	31-Aug-1987	8-Sep-1987	8-Sep-1987	14-Sep-1987	8-Sep-1987
Client Sample ID	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS
Time	9:30	10:15	13:30	11:50	11:00	15:00	12:40	16:00	15:30	13:30	16:30	11:30	18:30	18:15	18:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	0.001000	0.001000	0.00200	0.001000	0.001000	-	-	-	-	-	-	0.00200	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	2.90	1.82	1.39	1.27	1.20	-	-	-	-	-	-	1.34	-	-	-
Manganese (Mn)	0.0200	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	0.01000	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	0.01000	-	-	-
Nickel (Ni)	0.0500	0.0500	0.0500	0.0500	0.0500	-	-	-	-	-	-	0.0500	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	0.01000	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	0.01000	-	-	-
Zinc (Zn)	0.00500	0.00500	-	0.00500	0.00500	-	-	-	-	-	-	0.00500	-	-	-
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	-	-	-	-	-	2.20	2.20	49.0	23.0	5.00	8.00	-	2.00	23.0	2.00
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400187	400187	400187	400187	400434	400434	400434	400435	400435	400435	400434	400434	400435	400435
Date	14-Sep-1987	7-Oct-1987	16-Nov-1987	8-Feb-1988	8-Mar-1988	16-Aug-1988	22-Aug-1988	29-Aug-1988	16-Aug-1988	22-Aug-1988	29-Aug-1988	6-Sep-1988	12-Sep-1988	6-Sep-1988	12-Sep-1988
Client Sample ID	BULKLEY R. IDZ AT SMITHERS	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS
Time	17:30	11:00	11:30	9:00	9:00	13:00	14:30	12:45	13:30	14:00	12:15	12:45	12:00	12:15	11:30
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	-	0.001000	0.001000	0.001000	0.001000	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	1.63	2.14	3.07	3.33	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	0.0500	0.0500	0.0500	0.0500	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	0.01000	0.01000	0.01000	0.01000	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	0.00500	0.00500	0.00500	0.00500	-	-	-	-	-	-	-	-	-	-
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	-	-	-	-	8.00	4.00	9.00	2.00	6.00	10.00	2.00	2.00	4.00	2.00
F. coli (MPN)	23.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400434	400434	400435	400435	400434	400434	400434	400435	400435	400435	400435	400434	400435	400434	400434	400434
Date	24-Jul-1989	31-Jul-1989	24-Jul-1989	31-Jul-1989	8-Aug-1989	14-Aug-1989	21-Aug-1989	8-Aug-1989	14-Aug-1989	21-Aug-1989	26-Jun-1990	26-Jun-1990	3-Jul-1990	9-Jul-1990	18-Jul-1990	
Client Sample ID	BULKLEY R	BULKLEY R	BULKLEY R.	BULKLEY R.	BULKLEY R	BULKLEY R	BULKLEY R	BULKLEY R.	BULKLEY R.	BULKLEY R.	BULKLEY R	BULKLEY R.	BULKLEY R	BULKLEY R	BULKLEY R	
	UPSTREAM	UPSTREAM	IDZ AT	IDZ AT	UPSTREAM	UPSTREAM	UPSTREAM	IDZ AT	IDZ AT	IDZ AT	UPSTREAM	IDZ AT	UPSTREAM	UPSTREAM	UPSTREAM	
	FROM	FROM	SMITHERS	SMITHERS	FROM	FROM	FROM	SMITHERS	SMITHERS	SMITHERS	FROM	SMITHERS	FROM	FROM	FROM	
	SMITHERS SEWAGE	SMITHERS SEWAGE			SMITHERS SEWAGE	SMITHERS SEWAGE	SMITHERS SEWAGE				SMITHERS SEWAGE		SMITHERS SEWAGE	SMITHERS SEWAGE	SMITHERS SEWAGE	
Time	12:12	10:00	13:00	9:40	10:38	-	-	11:05	-	11:50	14:28	14:46	14:02	13:12	12:48	
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Metals (cont'd)																
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bacteria																
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
F. coli (CFU)	7.00	6.00	16.0	7.00	2.00	8.00	19.0	9.00	8.00	3.00	7.00	7.00	35.0	5.00	10.00	
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400434	400435	400435	400435	400435	400434	400434	400434	400434	400434	400434	400435	400435	400435	400435
Date	23-Jul-1990	3-Jul-1990	9-Jul-1990	18-Jul-1990	23-Jul-1990	16-Jul-1991	16-Jul-1991	22-Jul-1991	22-Jul-1991	31-Jul-1991	31-Jul-1991	16-Jul-1991	16-Jul-1991	22-Jul-1991	22-Jul-1991
Client Sample ID	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS
Time	12:10	14:25	13:28	11:45	12:28	-	15:50	-	15:45	-	12:15	-	15:20	-	15:15
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	4.00	33.0	11.0	7.00	3.00	-	2.00	-	4.00	-	1.000	-	4.00	-	2.00
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400435	400434	400434	400434	400435	400435	400435	400435	400435	400434	400434	400435	400435	400434	400434
Date	31-Jul-1991	31-Jul-1991	6-Aug-1991	6-Aug-1991	15-Aug-1991	6-Aug-1991	6-Aug-1991	6-Aug-1991	15-Aug-1991	15-Aug-1991	20-Jul-1992	27-Jul-1992	20-Jul-1992	27-Jul-1992	4-Aug-1992	10-Aug-1992
Client Sample ID	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE
Time	-	11:25	-	12:20	12:25	-	12:00	-	11:55	15:06	13:59	14:33	14:15	13:30	14:30	
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (cont'd)																
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteria																
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	3.00	-	6.00	7.00	-	1.000	-	9.00	2.00	2.00	2.00	2.00	5.00	1.000	
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435	400435	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125
Date	4-Aug-1992	10-Aug-1992	3-Oct-2001	10-Oct-2001	10-Oct-2001	22-Oct-2001	22-Oct-2001	29-Oct-2001	29-Oct-2001	8-Aug-2002	8-Aug-2002	14-Aug-2002	14-Aug-2002	20-Aug-2002	20-Aug-2002
Client Sample ID	BULKLEY R.	BULKLEY R.	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY
	IDZ AT	IDZ AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT
	SMITHERS	SMITHERS	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA
			WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM
			INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE
Time	13:50	15:11	14:30	14:00	14:10	12:30	12:40	12:00	12:10	-	16:00	-	16:00	-	16:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	2.00	1.000	-	-	2.00	-	1.000	-	1.000	1.000	-	3.00	-	2.00	-
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	2.00	-	1.000	-	1.000	1.000	-	2.00	-	1.000	-
Enterococci (CFU)	-	-	-	-	1.000	-	1.000	-	1.000	-	-	9.00	-	2.00	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125
Date	27-Aug-2002	27-Aug-2002	3-Sep-2002	3-Sep-2002	7-Oct-2002	7-Oct-2002	15-Oct-2002	21-Oct-2002	28-Oct-2002	28-Oct-2002	3-Nov-2002	3-Nov-2002	12-Nov-2002	12-Nov-2002	18-Nov-2002
Client Sample ID	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY	BULKLEY
	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT	RIVER AT
	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA	TELKWA
	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM	SYSTEM
	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE
Time	-	16:00	-	16:00	-	16:00	-	-	-	16:00	-	16:00	-	16:00	10:59
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	2.00	-	4.00	-	7.00	-	5.00	1.000	1.000	-	1.000	-	2.00	-	5.00
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	1.000	-	4.00	-	5.00	-	2.00	1.000	1.000	-	1.000	-	2.00	-	4.00
Enterococci (CFU)	1.000	-	3.00	-	4.00	-	1.000	1.000	4.00	-	1.000	-	3.00	-	10.00

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E246125	E242647	E242646	E242647	E242646	E242647	400187	E242646	E242647
Date	18-Nov-2002	18-Nov-2002	18-Nov-2002	18-Nov-2002	18-Nov-2002	25-Nov-2002	25-Nov-2002	25-Nov-2002	2-Sep-2004	17-May-2006	17-May-2006	15-Jun-2006	15-Jun-2006	19-Jul-2006	19-Jul-2006	19-Jul-2006
Client Sample ID	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	BULKLEY RIVER AT TELKWA WATER SYSTEM INTAKE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE
Time	11:02	11:05	11:08	11:11	16:00	-	16:00	16:00	16:00	-	-	11:00	11:15	11:05	10:45	10:50
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Aliquot	Aliquot	Aliquot	Aliquot	Aliquot
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)																
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteria																
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	5.00	3.00	2.00	6.00	-	5.00	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	2.00	1.000	1.000	2.00	-	3.00	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	5.00	24.0	2.00	29.0	-	4.00	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	E242646	E242646	E242647	E242647	E242647	400187	E242646	E242647	400187	E242646	E242647	400187	E242646	E242647
Date	14-Aug-2006	14-Aug-2006	23-Aug-2006	14-Aug-2006	23-Aug-2006	23-Aug-2006	6-Sep-2006	6-Sep-2006	6-Sep-2006	16-Oct-2006	16-Oct-2006	16-Oct-2006	14-Nov-2006	14-Nov-2006	14-Nov-2006
Client Sample ID	TELKWA R AT VILLAGE	TENAS CREEK	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE
Time	11:20	11:00	12:45	11:05	15:20	15:25	-	-	-	-	-	-	-	-	-
QAQC	Aliquot	Aliquot	Regular	Aliquot	Regular	Replicate	Aliquot	Aliquot	Aliquot	Aliquot	Aliquot	Aliquot	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	-	-	-	-	-	-	-	-	-	0.00600	0.00200	0.001000	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	E242646	E242647	400187	E242646	E242647	400187	E242646	E242647	400187	E242646	E242647	400435	400435	E242646
Date	18-Dec-2006	18-Dec-2006	18-Dec-2006	22-Jan-2007	22-Jan-2007	22-Jan-2007	12-Feb-2007	12-Feb-2007	12-Feb-2007	19-Mar-2007	19-Mar-2007	19-Mar-2007	26-Sep-2007	26-Sep-2007	17-Dec-2007
Client Sample ID	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	TENAS CREEK
Time	13:30	12:30	13:05	12:15	10:54	11:15	12:33	11:34	11:55	13:10	12:25	12:05	1:30	1:31	13:30
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Aliquot	Aliquot	Aliquot	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000050
Lithium (Li)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000600
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.15
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00363
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000130
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000140
Potassium (K)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.205
Selenium (Se)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000400
Silicon (Si)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.29
Silver (Ag)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000050
Sodium (Na)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.80
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.115
Sulphur (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.00
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000020
Tin (Sn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0000100
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000500
Uranium (U)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000165
Vanadium (V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000400
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000300
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E242647	400187	E242646	400187	E242646	400187	E242646	E242647	400187	E242646	E242646	E242647	E242647	400187	E242646
Date	17-Dec-2007	22-Jan-2008	22-Jan-2008	18-Mar-2008	18-Mar-2008	15-Apr-2008	15-Apr-2008	15-Apr-2008	17-Jun-2008	17-Jun-2008	17-Jun-2008	17-Jun-2008	17-Jun-2008	21-Jul-2008	21-Jul-2008
Client Sample ID	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	TELKWA R AT VILLAGE	TENAS CREEK	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK
Time	13:00	13:00	13:30	13:00	13:30	14:25	15:00	14:55	12:30	12:40	15:30	12:00	15:00	13:15	14:10
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	0.0000050	0.0000070	0.0000050	0.0000090	0.0000050	0.0000200	0.0000210	0.0000050	0.0000160	0.0000050	0.0000050	0.0000050	0.0000050	0.0000290	0.0000050
Lithium (Li)	0.000500	0.000500	0.000500	0.000500	0.000600	0.000500	0.000500	0.000600	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500
Magnesium (Mg)	4.74	3.46	5.93	3.64	6.41	3.86	6.02	6.86	1.46	2.96	3.08	2.86	2.83	1.20	2.96
Manganese (Mn)	0.000200	0.00621	0.00341	0.00985	0.00450	0.0138	0.00418	0.00133	0.00361	0.00177	0.00169	0.00177	0.00177	0.00493	0.00200
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.000470	0.000600	0.000150	0.000490	0.000190	0.000460	0.000170	0.000550	0.000420	1.00E-04	0.000110	0.000560	0.000570	0.000630	0.0000900
Nickel (Ni)	0.000120	0.0000600	0.000170	0.000140	0.000140	0.000190	0.000590	0.000190	0.0000600	0.000130	0.000120	0.000140	0.000150	0.0000200	0.0000800
Potassium (K)	0.340	0.305	0.220	0.320	0.240	0.390	0.280	0.450	0.180	0.160	0.180	0.300	0.290	0.210	0.180
Selenium (Se)	0.0000700	0.0000600	0.0000400	0.0000700	0.0000400	0.0000500	0.0000400	0.0000700	0.0000600	0.0000500	0.0000600	0.0000800	0.0000800	0.0000500	0.0000400
Silicon (Si)	2.86	3.32	3.55	3.43	3.24	4.37	3.64	3.04	2.54	3.31	3.40	2.55	2.48	1.77	2.68
Silver (Ag)	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Sodium (Na)	2.90	2.83	4.43	2.93	4.93	2.98	4.50	4.77	1.18	2.40	2.49	1.70	1.67	0.930	2.55
Strontium (Sr)	0.0818	0.0885	0.130	0.0923	0.144	0.0891	0.133	0.109	0.0446	0.0748	0.0766	0.0557	0.0548	0.0435	0.0731
Sulphur (S)	6.50	3.00	3.00	3.00	3.00	3.00	3.00	10.00	3.00	3.00	3.00	5.00	5.00	3.00	3.00
Thallium (Tl)	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020
Tin (Sn)	0.0000200	0.0000100	0.0000100	0.0000100	0.0000300	0.0000200	0.0000200	0.0000200	0.0000100	0.0000300	0.0000200	0.0000100	0.0000200	0.0000100	0.0000100
Titanium (Ti)	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500
Uranium (U)	0.0000750	0.0000120	0.000198	0.0000900	0.000271	0.0000910	0.000247	0.000140	0.0000280	0.0000510	0.0000520	0.0000230	0.0000210	0.0000210	0.0000390
Vanadium (V)	0.000200	0.000200	0.000200	0.000200	0.000200	0.000300	0.000500	0.000200	0.000300	0.000600	0.000600	0.000200	0.000200	0.000200	0.000700
Zinc (Zn)	0.000400	0.000200	0.000200	0.000200	0.000300	0.000300	0.000200	0.000600	0.000200	0.000200	0.000300	0.000600	0.000500	0.000300	1.00E-04
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400187	E242646	E242647	400187	400187	E242646	E242647	E242647	400187	E242646	E242647	400187	E242646	E242647	400187
Date	18-Aug-2008	18-Aug-2008	18-Aug-2008	15-Sep-2008	15-Sep-2008	15-Sep-2008	15-Sep-2008	15-Sep-2008	20-Oct-2008	20-Oct-2008	20-Oct-2008	19-Nov-2008	19-Nov-2008	19-Nov-2008	15-Dec-2008
Client Sample ID	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE
Time	12:50	13:55	13:30	10:55	14:05	11:45	11:30	13:30	12:50	12:00	12:25	12:25	13:25	13:00	11:00
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	0.000109	0.0000050	0.0000090	0.0000720	0.0000820	0.0000050	0.0000050	0.0000050	0.0000260	0.0000050	0.0000050	0.0000230	0.0000080	0.0000090	0.0000270
Lithium (Li)	0.000500	0.000600	0.000500	0.000500	0.000500	0.000600	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500
Magnesium (Mg)	1.09	3.64	2.40	1.67	1.69	4.04	2.95	2.95	2.28	4.86	3.57	2.31	4.56	3.87	2.93
Manganese (Mn)	0.00524	0.00149	0.00109	0.00273	0.00242	0.000230	0.00131	0.00130	0.0134	0.00362	0.00120	0.0184	0.00460	0.00168	0.0191
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	0.000580	0.000110	0.000640	0.000640	0.000640	0.000110	0.000500	0.000500	0.000600	0.000120	0.000480	0.000510	0.000110	0.000410	0.000460
Nickel (Ni)	0.000120	0.000110	0.0000500	0.0000400	0.0000500	0.0000800	0.0000800	0.000220	0.0000400	1.00E-04	0.000160	0.0000700	0.000310	0.000180	0.000160
Potassium (K)	0.280	0.190	0.320	0.260	0.260	0.190	0.320	0.320	0.270	0.230	0.330	0.250	0.200	0.310	0.270
Selenium (Se)	0.0000600	0.0000400	0.0000700	0.0000800	0.0000900	0.0000400	0.0000900	0.0000900	0.0000900	0.0000400	0.0000600	0.000110	0.0000700	0.0000900	0.0000800
Silicon (Si)	1.66	2.33	2.09	2.28	2.54	3.19	2.59	2.73	2.77	3.19	2.51	3.65	4.05	2.93	4.20
Silver (Ag)	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Sodium (Na)	0.850	2.82	1.54	1.27	1.29	3.06	1.80	1.80	1.61	3.57	2.17	1.83	3.69	2.38	2.24
Strontium (Sr)	0.0409	0.0879	0.0542	0.0568	0.0572	0.0969	0.0637	0.0618	0.0697	0.112	0.0708	0.0659	0.106	0.0693	0.0797
Sulphur (S)	3.00	3.00	9.00	3.00	3.00	3.00	7.00	8.00	3.00	3.00	8.00	3.00	3.00	5.00	3.00
Thallium (Tl)	0.0000020	0.0000020	0.0000020	0.0000030	0.0000020	0.0000020	0.0000050	0.0000040	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020
Tin (Sn)	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000100	0.0000500	0.0000300	0.0000100	0.0000300	0.0000400	0.0000100	0.0000200	0.0000100	0.0000400
Titanium (Ti)	0.00550	0.00120	0.00110	0.001000	0.00160	0.000500	0.000700	0.000600	0.00130	0.00140	0.00140	0.000900	0.00150	0.001000	0.00140
Uranium (U)	0.0000250	0.0000500	0.0000030	0.0000200	0.0000200	0.0000790	0.0000130	0.0000240	0.0000540	0.000122	0.0000320	0.0000500	0.000112	0.0000360	0.0000600
Vanadium (V)	0.000400	0.000600	0.000200	0.000200	0.000300	0.000600	0.000200	0.000200	0.000500	0.000300	0.000200	0.000300	0.000400	0.000200	0.000300
Zinc (Zn)	0.000600	0.000300	0.001000	0.000600	0.000400	1.00E-04	0.000900	0.000800	0.000200	0.000200	0.000600	0.000500	0.000600	0.000300	0.000500
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	E242646	E242647	400187	400187	400434	400435	400435	400434	400434	400434	400435	400435	400435	400435	400435
Date	15-Dec-2008	15-Dec-2008	17-Feb-2009	15-Mar-2009	29-Aug-2012	29-Aug-2012	29-Aug-2012	6-Sep-2012	18-Sep-2012	26-Sep-2012	6-Sep-2012	18-Sep-2012	26-Sep-2012	26-Sep-2012	26-Sep-2012
Client Sample ID	TENAS CREEK	GOATHORN CR ABOVE TENAS CR CONFLUENCE	TELKWA R AT VILLAGE	TELKWA R AT VILLAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS	BULKLEY R. IDZ AT SMITHERS
Time	12:15	11:50	13:10	11:05	14:00	-	14:45	14:00	14:00	13:40	14:30	14:40	9:50	11:50	12:40
QAQC	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular	Replicate-First
ALS Sample ID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals (<i>cont'd</i>)															
Lead (Pb)	0.0000070	0.0000070	0.0000280	0.0000090	-	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	0.000500	0.000500	0.000500	0.000500	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	3.69	4.25	2.94	3.10	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	0.00256	0.00157	0.00451	0.00555	-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	1.00E-04	0.000390	0.000470	0.000510	-	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	0.000290	0.000280	0.000120	0.0000500	-	-	-	-	-	-	-	-	-	-	-
Potassium (K)	0.160	0.320	0.280	0.270	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	0.0000500	0.0000900	0.0000900	1.00E-04	-	-	-	-	-	-	-	-	-	-	-
Silicon (Si)	3.16	2.88	3.66	3.73	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	0.0000050	0.0000050	0.0000050	0.0000050	-	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	2.93	2.73	2.26	2.02	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	0.0887	0.0765	0.0829	0.0830	-	-	-	-	-	-	-	-	-	-	-
Sulphur (S)	3.00	6.00	3.00	3.00	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	0.0000020	0.0000020	0.0000020	0.0000020	-	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	0.0000100	0.0000100	0.0000400	0.0000100	-	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	0.00140	0.00170	0.000500	0.000500	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	0.000105	0.0000460	0.0000600	0.0000510	-	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	0.000300	0.000200	0.000200	0.000300	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	0.000300	0.000500	0.000500	0.000300	-	-	-	-	-	-	-	-	-	-	-
Bacteria															
Total Coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. coli (MPN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli (CFU)	-	-	-	-	4.00	-	2.00	2.00	1.000	1.000	1.000	1.000	2.00	-	-
Enterococci (CFU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 8-E. Water Quality Historical Data, Tenas Project, 1974 to 2012

Site	400435
Date	26-Sep-2012
Client Sample ID	BULKLEY R. IDZ AT SMITHERS
Time	13:10
QAQC	Replicate-Second
ALS Sample ID	-
Dissolved Metals <i>(cont'd)</i>	
Lead (Pb)	-
Lithium (Li)	-
Magnesium (Mg)	-
Manganese (Mn)	-
Mercury (Hg)	-
Molybdenum (Mo)	-
Nickel (Ni)	-
Potassium (K)	-
Selenium (Se)	-
Silicon (Si)	-
Silver (Ag)	-
Sodium (Na)	-
Strontium (Sr)	-
Sulphur (S)	-
Thallium (Tl)	-
Tin (Sn)	-
Titanium (Ti)	-
Uranium (U)	-
Vanadium (V)	-
Zinc (Zn)	-
Bacteria	
Total Coli (MPN)	-
F. coli (CFU)	-
F. coli (MPN)	-
E. coli (CFU)	-
Enterococci (CFU)	-

Appendix 9-A *Sediment Quality Analytical Results, Tenas Project,
1986, 2017, and 2018*

Appendix 9-A. Sediment Quality Analytical Results, Tenas Project, 1986 and 2017 to 2019

Site Date			STRM93L861699 1986	WQS01 20-Sep-2017			WQS02 19-Sep-2017				STRM93L861412 1986	WQS05 18-Sep-2017			WQS08 18-Sep-2017				WQS09 19-Sep-2017		
Replicate		BC and CCME Sediment Quality Guidelines	1	1	2	3	1	2	3	1	1	2	3	1	2	3	1	2	3		
QAQC			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ALS Sample ID	RDL ¹		-	L1996387-1	L1996387-2	L1996387-3	L1996387-4	L1996387-5	L1996387-6	L1996387-19	-	L1996387-7	L1996387-8	L1996387-9	L1996387-10	L1996387-11	L1996387-12	L1996387-21	L1996387-13	L1996387-14	L1996387-15
Physical																					
pH (1:2 soil:water)	0.1		-	8.34	8.33	8.38	8.19	8.25	8.29	8.19	-	8.11	8.13	8.09	7.86	7.53	7.50	7.66	7.48	7.58	7.61
Particle Size																					
% Gravel (>2 mm)	1		-	<1.0	18.3	4.90	6.20	42.6	17.2	19.8	-	22.3	39.0	13.4	86.5	24.4	<1.0	1.20	<1.0	6.90	2.60
% Sand (2 - 0.063 mm)	1		-	82.6	66.9	86.4	89.2	52.8	79.4	76.0	-	72.2	59.0	81.6	13.3	74.4	90.8	90.8	58.4	86.7	95.7
% Silt (0.063 mm - 4 µm)	1		-	13.5	11.7	6.90	3.60	3.60	2.60	3.20	-	3.90	1.50	3.60	<1.0	1.20	7.40	6.80	36.3	5.30	1.30
% Clay (<4 µm)	1		-	3.60	3.20	1.90	<1.0	1.00	<1.0	<1.0	-	1.70	<1.0	1.40	<1.0	<1.0	1.20	1.20	5.30	1.20	<1.0
Organic Carbon																					
Total Organic Carbon (%)	0.05-0.1		-	0.290	0.555	0.228	0.152	0.134	0.245	0.079	-	0.287	0.192	0.249	<0.050	<0.050	0.195	0.101	1.70	0.334	0.152
Metals																					
Aluminum	50	CCME ISQG: 5.9 CCME PEL: 17	20,600	24,400	21,500	23,800	28,800	24,900	24,100	33,800	20,500	18,500	19,100	18,400	30,200	27,300	25,200	24,400	16,000	18,300	26,100
Antimony	0.1		0	1.65	1.61	1.51	1.03	1.49	1.04	1.08	0.340	0.970	0.830	0.820	0.420	0.420	0.430	0.420	0.570	0.610	0.540
Arsenic	0.05 - 0.1		7	13.9	13.1	14.0	12.4	13.0	10.6	13.3	9.00	14.8	15.9	15.5	8.34	7.46	7.42	6.85	8.38	9.26	10.5
Barium	0.5		176	213	201	186	196	238	178	228	172	400	506	401	281	286	257	242	235	302	279
Beryllium	0.1		-	0.390	0.380	0.360	0.360	0.360	0.330	0.380	-	0.440	0.470	0.450	0.440	0.360	0.430	0.430	0.360	0.400	0.410
Bismuth	0.1 - 0.2	CCME ISQG: 2.5 CCME PEL: 3.5	0	0.120	0.120	0.100	<0.10	0.110	<0.10	<0.10	0.100	0.280	0.270	0.310	<0.10	<0.10	<0.10	<0.10	0.180	0.170	0.110
Boron	5 - 10		-	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium	0.02 - 0.05		0	0.251	0.225	0.273	0.267	0.231	0.218	0.271	0.190	0.490	0.606	0.571	0.370	0.348	0.330	0.318	0.370	0.385	0.405
Calcium	50		14,800	15,800	14,200	16,400	17,200	14,100	13,900	20,600	11,300	9,110	9,520	9,040	16,100	15,000	13,400	12,800	8,660	10,100	14,400
Chromium	0.5		26	44.4	42.8	42.3	39.0	48.6	34.8	43.9	34.1	31.1	29.7	28.4	35.0	30.5	33.3	29.8	24.5	28.0	26.5
Cobalt	0.1	CCME ISQG: 35.7 CCME PEL: 197	17	20.2	18.3	20.3	21.1	20.4	18.1	22.4	16.3	18.0	19.2	18.7	19.3	16.5	15.9	15.0	12.2	14.2	16.7
Copper	0.5		31	45.0	41.4	43.9	43.4	42.0	36.0	46.3	35.2	59.8	62.4	63.9	41.3	36.3	41.4	38.0	44.7	45.3	43.0
Gallium	-		5	-	-	-	-	-	-	-	5.30	-	-	-	-	-	-	-	-	-	-
Gold	-		0	-	-	-	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-
Iron	50		45,100	50,900	50,600	48,200	45,100	59,600	43,500	50,400	51,700	48,500	51,000	48,600	46,600	42,700	50,500	46,900	40,700	45,800	41,900
Lanthanum	-	CCME ISQG: 35 CCME PEL: 91.3	7	-	-	-	-	-	-	-	8.50	-	-	-	-	-	-	-	-	-	-
Lead	0.1 - 0.5		6	7.66	7.52	7.06	6.53	7.69	5.98	6.64	7.66	9.96	9.53	9.87	8.97	8.95	12.0	12.1	10.9	10.4	9.26
Lithium	2 - 5		-	17.6	15.4	16.7	16.5	16.5	15.5	17.4	-	13.9	14.2	13.7	16.4	13.6	14.1	13.7	10.9	11.9	13.5
Magnesium	10 - 20		8,600	11,700	10,600	11,500	11,700	11,800	10,300	12,800	8,900	8,560	8,690	8,410	13,300	11,200	10,400	9,920	7,610	8,120	9,540
Manganese	0.2 - 1		1,044	1,330	1,180	1,440	1,550	1,350	1,240	1,610	949	1,140	1,290	1,190	1,670	1,350	1,220	1,100	828	1,050	1,350
Mercury	0.005 - 0.05	BC Lower: 21200 BC Upper: 43766	0	0.026	0.024	0.026	0.020	0.019	0.018	0.021	0.018	0.046	0.039	0.041	0.022	0.015	0.013	0.019	0.023	0.024	0.024
Molybdenum	0.1		0	0.530	0.370	0.340	0.380	0.410	0.320	0.410	0.410	1.05	1.41	1.23	0.890	0.620	0.690	0.760	0.750	0.830	0.900
Nickel	0.5		25	31.3	28.4	29.9	30.6	31.5	26.7	33.2	25.9	28.6	30.7	29.5	29.3	23.4	20.1	18.6	17.8	19.7	23.5
Phosphorus	50		470	689	711	582	555	697	508	597	630	635	665	630	836	868	943	848	838	799	705
Potassium	100		800	1,260	1,070	1,030	1,150	1,050	1,070	1,310	800	1,410	1,430	1,450	1,620	1,370	1,440	1,440	1,080	1,170	1,520
Selenium	0.1 - 0.2	BC: 2 BC: 0.5	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.300	0.180	0.210	0.220	0.160	0.110	0.120	0.120	0.160	0.160	0.170
Silver	0.05 - 0.1		0	0.078	0.076	0.067	0.067	0.056	0.056	0.108	0.040	0.110	0.100	0.105	0.100	0.195	0.120	0.104	0.124	0.116	0.094
Sodium	50 - 100		680	550	500	530	700	630	580	810	610	430	470	410	1,360	1,080	740	680	460	510	810
Strontium	0.1 - 0.5		118	85.4	79.6	83.3	102	85.9	83.3	115	96.1	66.0	69.0	64.6	125	123	130	122	68.4	81.8	114
Sulphur	1000		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.05	CCME ISQG: 123 CCME PEL: 315	<0.02	0.066	0.060	0.056	0.055	0.052	0.050	0.054	0.040	0.091	0.101	0.095	0.055	<0.050	0.053	0.055	0.061	0.062	0.068
Thorium	-		1	-	-	-	-	-	-	-	1.00	-	-	-	-	-	-	-	-	-	-
Tin	0.2 - 2		-	0.510	0.530	0.480	0.530	0.590	0.480	0.520	-	0.560	0.480	0.460	0.550	0.490	0.520	0.510	0.400	0.470	0.480
Tellurium	-		0	-	-	-	-	-	-	-	0.020	-	-	-	-	-	-	-	-	-	-
Titanium	1		970	953	1,030	906	911	1,270	850	1,150	1,320	525	461	415	1,400	1,230	1,170	1,180	771	883	932
Tungsten	-	CCME ISQG: 123 CCME PEL: 315	<0.1	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-
Uranium	0.05		0	0.409	0.421	0.375	0.394	0.456	0.353	0.397	0.500	0.466	0.458	0.467	0.612	0.565	0.738	0.786	0.631	0.670	0.581
Vanadium	0.2		97	117	122	107	100	152	94.9	119	118	90.2	85.1	84.3	113	108	131	119	88.9	103	87.1
Zinc	1 - 2		71	80.4	75.9	73.1	72.9	84.5	66.2	77.9	79.6	119	131	129	107	95.5	97.9	93.4	89.5	95.3	92.6
Zirconium	1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units are in mg/kg unless otherwise noted.
¹: RDL= Realized Detection Limits. RDL for historical data are not available.

ISQG: Interim Sediment Quality Guideline

PEL: Probable Effect Level

Appendix 9-A. Sediment Quality Analytical Results, Tenas Project, 1986 and 2017 to 2019

Site Date	WQS12 20-Sep-2017				WQS11-US 20-Sep-2018			WQS01 2019	WQS02 2019	WQS04B 24-Aug-2019		WQS03-DS 4-Oct-2019						WQS18 4-Oct-2019					
	1		2		3		1	1	1	1	Composite	1	2	3	4	5	Composite	1	2	3	4	5	
	SPLIT		-	-	-	-	-	-	SPLIT	-		-	-	-	-	-		-	-	-	-	-	-
ALS Sample ID	L1996387-16	L1996387-23	L1996387-17	L1996387-18	L2173073-4	L2173073-5	L2173073-6	L2337906-3	L2337906-4	L2336095-12	L2336095-27	L2361206-37	L2361206-6	L2361206-7	L2361206-8	L2361206-9	L2361206-10	L2361206-36	L2361206-1	L2361206-2	L2361206-3	L2361206-4	L2361206-5
Physical																							
pH (1:2 soil:water)	7.42	7.38	7.52	7.53	7.06	7.05	7.22	8.36	7.96	7.71	7.30	-	8.38	8.17	8.43	8.31	8.40	-	8.41	8.39	8.40	8.35	8.53
Particle Size																							
% Gravel (>2 mm)	7.40	7.00	73.3	6.00	1.90	2.20	6.20	<1.0	<1.0	1.90	5.50	3.20	-	-	-	-	-	1.40	-	-	-	-	-
% Sand (2 - 0.063 mm)	77.0	76.9	26.3	90.0	81.4	55.2	49.1	58.6	85.6	87.5	58.2	61.8	-	-	-	-	-	66.3	-	-	-	-	-
% Silt (0.063 mm - 4 µm)	13.8	14.2	<1.0	3.40	13.8	35.0	38.2	33.6	11.5	9.00	29.3	25.8	-	-	-	-	-	23.9	-	-	-	-	-
% Clay (<4 µm)	1.80	1.90	<1.0	<1.0	2.90	7.60	6.40	7.80	2.80	1.70	7.10	9.20	-	-	-	-	-	8.30	-	-	-	-	-
Organic Carbon																							
Total Organic Carbon (%)	0.313	0.299	<0.050	0.074	0.452	0.900	0.978	0.942	0.367	0.319	1.93	1.34	-	-	-	-	-	1.06	-	-	-	-	-
Metals																							
Aluminum	20,100	16,800	21,700	19,000	17,500	18,200	18,400	25,700	22,900	19,500	16,000	-	10,400	13,800	14,600	14,600	13,800	-	13,000	12,000	12,900	12,700	13,100
Antimony	0.570	0.530	0.590	0.500	0.550	0.520	0.530	1.11	0.900	0.660	0.690	-	0.510	0.690	0.760	0.700	0.620	-	0.680	0.690	0.630	0.690	0.760
Arsenic	9.75	8.03	10.1	8.83	9.08	7.90	8.12	10.6	9.73	9.59	12.6	-	10.6	11.4	10.9	9.55	10.4	-	11.0	10.8	10.1	9.88	11.9
Barium	222	192	222	210	227	219	209	197	165	172	341	-	122	170	178	166	181	-	161	165	154	160	144
Beryllium	0.410	0.390	0.390	0.380	0.400	0.420	0.420	0.420	0.340	0.330	0.400	-	0.350	0.390	0.380	0.360	0.380	-	0.370	0.370	0.340	0.350	0.340
Bismuth	0.110	0.110	<0.10	<0.10	<0.10	0.100	0.110	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	<10	<10	<10	<10	<10	<10	<10	<5.0	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	0.317	0.285	0.295	0.288	0.298	0.337	0.319	0.215	0.172	0.132	0.422	-	0.180	0.267	0.241	0.229	0.266	-	0.220	0.230	0.533	0.227	0.236
Calcium	10,100	8,770	9,770	9,580	8,450	8,420	8,750	14,000	11,700	10,000	6,980	-	8,680	9,050	9,210	9,040	10,100	-	9,390	9,640	9,730	9,460	10,300
Chromium	34.7	30.7	32.8	28.7	42.2	35.2	36.6	36.7	34.8	27.7	24.1	-	16.4	21.8	23.2	22.5	21.3	-	22.6	21.4	21.0	20.9	21.7
Cobalt	14.0	12.2	16.0	13.5	13.9	12.8	13.2	18.6	17.7	13.3	15.1	-	13.0	15.3	15.5	14.2	14.1	-	15.0	14.0	14.1	14.1	14.5
Copper	37.1	31.7	33.1	33.2	29.8	35.0	33.6	37.5	30.4	25.8	48.4	-	22.7	29.2	28.4	26.1	27.4	-	25.6	27.0	24.8	24.8	23.7
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gold	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	43,900	39,200	45,400	38,800	44,800	38,400	40,900	47,600	47,000	41,500	39,400	-	41,900	36,000	37,200	36,500	36,100	-	44,000	41,300	38,000	37,000	38,200
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	9.77	9.10	8.06	8.37	8.58	8.54	8.69	6.72	5.83	5.39	7.85	-	7.19	8.59	8.45	7.69	7.83	-	7.98	8.15	7.79	7.77	8.28
Lithium	12.7	11.9	15.4	12.2	11.9	12.0	12.4	16.8	14.7	13.5	10.8	-	7.40	10.6	11.2	11.3	10.8	-	10.1	9.60	9.80	9.70	10.3
Magnesium	8,620	7,740	10,800	8,280	7,900	7,960	8,430	12,000	11,100	9,570	7,340	-	7,150	6,860	7,530	7,210	7,870	-	8,100	7,320	7,290	6,870	7,330
Manganese	1,120	959	1,350	1,080	1,390	1,170	1,080	1,230	1,070	705	966	-	721	1,040	955	933	1,150	-	909	911	928	894	1,000
Mercury	0.021	0.029	0.019	0.021	0.023	0.030	0.027	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum	0.700	0.640	1.07	0.640	1.03	0.840	0.840	0.360	0.360	0.580	1.03	-	0.680	0.810	0.680	0.650	0.610	-	0.690	0.680	0.580	0.590	0.740
Nickel	22.3	19.4	27.1	21.1	25.2	23.6	23.7	28.2	27.8	22.9	24.7	-	22.0	26.8	26.9	25.5	26.1	-	25.8	25.0	25.1	24.1	25.2
Phosphorus	1,030	886	945	872	881	892	958	552	535	573	630	-	389	527	572	550	500	-	553	513	521	545	532
Potassium	1,220	900	1,280	1,070	810	920	860	1,050	910	690	860	-	870	880	900	810	850	-	830	790	670	750	730
Selenium	0.180	0.160	0.130	0.170	0.140	0.170	0.150	<0.20	<0.20	<0.20	0.250	-	<0.20	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20	<0.20
Silver	0.117	0.100	0.106	0.091	0.146	0.111	0.114	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	530	450	660	500	339	364	395	588	546	478	304	-	260	288	322	297	286	-	295	263	287	285	283
Strontium	68.2	59.3	70.4	65.4	48.6	50.2	54.3	98.0	94.5	94.6	53.2	-	47.8	64.7	63.0	61.2	54.7	-	58.0	60.9	58.0	59.2	61.9
Sulphur	-	-	-	-	-	-	-	<1000	<1000	<1000	<1000	-	3,800	1,200	<1000	<1000	1,000	-	2,200	2,500	1,200	1,200	1,600
Thallium	0.061	0.053	0.055	0.057	0.058	0.063	0.060	0.061	<0.050	<0.050	0.075	-	0.062	0.077	0.070	0.065	0.061	-	0.068	0.074	0.066	0.067	0.066
Thorium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	0.500	0.440	0.690	0.420	0.460	0.420	0.440	<2.0	<2.0	<2.0													

All units are in mg/kg unless otherwise noted.
*: RDL= Realized Detection Limits. RDL for historical data are not available.

ISQG: Interim Sediment Quality Guideline
PEL: Probable Effect Level

Appendix 9-A. Sediment Quality Analytical Results, Tenas Project, 1986 and 2017 to 2019

Site Date Replicate QAQC ALS Sample ID	WQS06-US 4-Oct-2019										WQS07 6-Oct-2019						WQS05 25-Aug-2019	
	Composite - L2361206-39	1		2		3		4		5		Composite - L2361206-38	1 - L2361206-11	2 - L2361206-12	3 - L2361206-13	4 - L2361206-14	5 - L2361206-15	1 - L2336095-11
		SPLIT		SPLIT		SPLIT		SPLIT		SPLIT								
Physical pH (1:2 soil:water)	-	7.55	7.76	7.83	7.70	7.81	7.72	7.99	7.67	7.96	7.79	-	7.77	7.93	7.95	7.86	7.72	7.63
Particle Size																		
% Gravel (>2 mm)	13.6	-	-	-	-	-	-	-	-	-	-	18.2	-	-	-	-	-	6.00
% Sand (2 - 0.063 mm)	67.1	-	-	-	-	-	-	-	-	-	-	70.8	-	-	-	-	-	65.9
% Silt (0.063 mm - 4 µm)	14.9	-	-	-	-	-	-	-	-	-	-	8.60	-	-	-	-	-	22.6
% Clay (<4 µm)	4.50	-	-	-	-	-	-	-	-	-	-	2.30	-	-	-	-	-	5.50
Organic Carbon																		
Total Organic Carbon (%)	0.999	-	-	-	-	-	-	-	-	-	-	0.932	-	-	-	-	-	2.26
Metals																		
Aluminum	-	14,700	15,300	14,500	16,100	14,400	13,600	14,500	13,000	14,500	14,700	-	14,500	14,200	13,300	13,800	13,900	15,300
Antimony	-	0.990	0.890	0.920	0.850	0.870	1.21	0.700	0.900	0.940	0.890	-	0.970	0.720	0.780	0.900	0.900	0.840
Arsenic	-	15.3	13.0	14.0	12.7	12.8	13.6	9.28	13.4	12.8	13.8	-	12.3	11.3	11.4	13.2	12.7	11.9
Barium	-	300	296	245	248	273	248	175	237	177	243	-	191	180	152	187	220	277
Beryllium	-	0.440	0.390	0.390	0.420	0.360	0.400	0.310	0.360	0.330	0.440	-	0.350	0.350	0.320	0.370	0.390	0.380
Bismuth	-	0.540	0.230	0.260	0.330	0.270	0.540	<0.20	0.400	0.200	0.290	-	0.230	0.250	<0.20	0.250	0.350	<0.20
Boron	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	-	1.09	0.672	0.642	1.03	0.697	0.699	0.507	0.589	0.519	1.01	-	0.875	0.829	0.736	0.804	1.30	0.422
Calcium	-	7,610	5,900	6,400	6,280	6,060	5,740	5,110	5,340	5,650	6,000	-	6,030	6,330	5,350	6,230	7,130	6,150
Chromium	-	26.1	24.7	25.8	29.3	25.0	25.0	32.6	25.8	25.2	25.5	-	24.6	26.1	25.2	23.9	27.2	25.2
Cobalt	-	19.4	16.2	16.7	18.1	16.4	15.4	15.0	14.9	15.8	18.6	-	17.0	16.9	15.0	16.1	18.8	15.2
Copper	-	112	60.9	66.3	90.4	63.5	60.0	47.8	52.8	51.3	92.9	-	63.2	65.8	48.9	75.8	95.7	41.4
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gold	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	-	43,500	43,600	47,800	43,200	45,000	52,200	43,800	46,500	46,400	48,100	-	41,800	42,500	42,200	43,800	39,800	44,900
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	9.72	7.83	8.82	8.19	8.56	8.35	6.71	8.09	7.96	7.99	-	8.08	7.75	7.39	8.09	8.94	7.57
Lithium	-	13.2	14.1	13.2	15.6	12.8	13.2	14.8	12.8	13.8	14.1	-	13.9	13.5	13.5	12.6	13.0	12.1
Magnesium	-	7,540	9,010	7,970	10,200	7,870	9,050	10,300	8,310	8,690	9,350	-	9,030	8,790	8,480	8,040	8,260	7,580
Manganese	-	1,200	1,090	975	1,150	1,020	976	895	970	1,000	1,190	-	1,070	1,100	1,010	1,050	1,220	992
Mercury	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum	-	1.55	1.28	1.81	1.11	1.32	1.47	0.950	1.39	1.26	1.86	-	1.24	1.04	1.07	1.42	1.33	1.10
Nickel	-	25.4	23.2	23.8	26.7	23.6	22.8	25.0	22.4	21.8	24.3	-	23.6	23.8	23.1	22.4	24.4	24.0
Phosphorus	-	575	584	536	601	541	567	626	544	549	649	-	599	620	641	600	666	573
Potassium	-	950	940	930	890	940	790	730	720	900	850	-	760	860	720	770	780	880
Selenium	-	0.310	<0.20	<0.20	0.230	<0.20	<0.20	<0.20	<0.20	<0.20	0.270	-	<0.20	0.210	<0.20	<0.20	0.310	<0.20
Silver	-	0.160	<0.10	0.100	0.110	<0.10	<0.10	<0.10	<0.10	<0.10	0.110	-	<0.10	<0.10	<0.10	<0.10	0.140	<0.10
Sodium	-	278	280	291	293	328	259	277	247	418	249	-	291	263	253	265	268	290
Strontium	-	40.3	36.9	37.2	36.2	34.9	34.3	26.6	29.7	32.0	31.4	-	34.7	28.0	32.0	33.4	32.7	42.9
Sulphur	-	1,100	1,200	1,100	<1000	<1000	1,900	<1000	1,500	<1000	<1000	-	<1000	<1000	<1000	<1000	<1000	<1000
Thallium	-	0.103	0.083	0.090	0.088	0.083	0.083	0.064	0.095	0.085	0.093	-	0.077	0.087	0.080	0.081	0.088	0.074
Thorium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Tellurium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	-	325	517	425	467	471	534	581	505	606	415	-	512	469	503	459	346	517
Tungsten	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	-	0.718	0.386	0.431	0.495	0.433	0.397	0.358	0.402	0.437	0.487	-	0.398	0.438	0.397	0.461	0.625	0.393
Vanadium	-	72.4	80.8	79.8	78.5	79.9	86.6	81.8	86.8	85.5	82.2	-	75.8	75.0	73.2	75.8	67.6	79.6
Zinc	-	175	131	139	161	144	135	123	121	127	166	-	160	152	142	150	188	107
Zirconium	-	1.60	3.10	3.40	2.10	3.10	3.50	3.50	3.20	3.90	2.30	-	3.70	2.20	3.70	2.90	1.90	4.10

All units are in mg/kg unless otherwise noted.
*: RDL= Realized Detection Limits. RDL for historical data are not available.

ISQG: Interim Sediment Quality Guideline

PEL: Probable Effect Level

Appendix 9-A. Sediment Quality Analytical Results, Tenas Project, 1986 and 2017 to 2019

Site Date	WQS16 6-Oct-2019						WQS17 6-Oct-2019						WQS08 25-Aug-2019	WQS09 25-Aug-2019	WQS11-US 24-Aug-2019	WQS12 24-Aug-2019	unknown 2019	
Replicate	Composite	1	2	3	4	5	1	1	2	3	4	5	1	1	1	1	Composite	
QAQC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPLIT	
ALS Sample ID	L2361206-41	L2361206-26	L2361206-27	L2361206-28	L2361206-29	L2361206-30	L2361206-40	L2361206-21	L2361206-22	L2361206-23	L2361206-24	L2361206-25	L2336095-10	L2336095-9	L2336095-8	L2336095-7	L2361206-42	
Physical																		
pH (1:2 soil:water)	-	7.33	7.88	7.49	7.49	7.56	-	7.79	7.73	7.76	7.44	7.70	7.48	7.76	6.38	7.46	-	
Particle Size																		
% Gravel (>2 mm)	16.5	-	-	-	-	-	6.30	-	-	-	-	-	1.90	2.00	24.7	14.4	19.0	
% Sand (2 - 0.063 mm)	75.4	-	-	-	-	-	84.1	-	-	-	-	-	88.5	95.7	40.5	79.7	65.5	
% Silt (0.063 mm - 4 µm)	6.00	-	-	-	-	-	7.00	-	-	-	-	-	8.50	2.20	30.6	5.10	12.2	
% Clay (<4 µm)	2.10	-	-	-	-	-	2.60	-	-	-	-	-	1.10	<1.0	4.20	<1.0	3.30	
Organic Carbon																		
Total Organic Carbon (%)	1.51	-	-	-	-	-	0.889	-	-	-	-	-	0.136	0.112	0.826	0.248	0.881	
Metals																		
Aluminum	-	14,000	12,900	12,300	13,500	12,100	-	12,600	12,700	12,900	11,600	13,400	14,400	14,800	17,200	11,700	-	
Antimony	-	0.730	0.490	0.560	0.600	0.540	-	0.560	0.690	0.560	0.530	0.650	0.490	0.390	0.440	0.350	-	
Arsenic	-	21.1	17.9	19.4	20.8	19.0	-	18.7	19.6	19.5	16.6	20.0	6.37	6.64	8.06	5.64	-	
Barium	-	265	162	200	238	158	-	186	175	179	137	189	156	173	204	60.2	-	
Beryllium	-	0.390	0.330	0.360	0.380	0.330	-	0.340	0.340	0.310	0.300	0.340	0.280	0.260	0.350	0.210	-	
Bismuth	-	<0.20	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-	
Boron	-	<5.0	<5.0	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	-	
Cadmium	-	0.927	0.765	0.888	0.870	0.759	-	0.724	0.701	0.633	0.591	0.674	0.189	0.162	0.243	0.125	-	
Calcium	-	6,130	3,780	5,360	5,440	3,770	-	3,840	3,860	3,860	3,510	3,970	6,750	6,430	7,380	4,440	-	
Chromium	-	22.0	19.4	15.0	16.7	18.2	-	16.9	17.8	18.3	15.6	16.2	25.9	16.6	27.7	19.8	-	
Cobalt	-	13.0	11.9	12.6	12.2	12.7	-	12.5	13.9	12.0	11.1	12.6	11.1	11.0	12.4	9.53	-	
Copper	-	26.0	17.9	21.8	23.4	18.8	-	18.7	19.5	18.2	18.4	19.6	20.2	22.2	26.2	14.5	-	
Gallium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gold	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	-	41,000	38,600	35,300	39,500	41,000	-	42,800	39,400	38,600	35,300	39,900	50,200	34,100	35,100	37,400	-	
Lanthanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	-	15.8	13.7	14.5	15.8	13.5	-	13.8	15.0	14.6	11.2	14.5	8.43	5.18	6.60	4.43	-	
Lithium	-	12.9	12.9	12.5	12.3	12.8	-	11.4	12.7	12.3	11.6	13.0	9.00	10.7	11.0	9.70	-	
Magnesium	-	6,300	6,890	6,440	6,560	7,170	-	6,620	7,090	6,600	6,730	6,650	7,680	8,890	7,990	7,400	-	
Manganese	-	1,220	1,040	1,350	1,250	1,230	-	1,290	1,200	1,110	1,040	1,200	959	898	1,030	767	-	
Mercury	-	<0.050	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	
Molybdenum	-	0.830	0.700	0.700	0.720	0.750	-	0.740	0.750	0.680	0.630	0.720	0.450	0.460	0.520	0.360	-	
Nickel	-	19.5	20.3	16.4	17.7	17.6	-	17.3	18.8	18.0	16.9	17.2	15.4	14.7	21.2	14.1	-	
Phosphorus	-	661	586	682	623	637	-	643	609	612	647	632	722	640	775	613	-	
Potassium	-	820	700	740	780	530	-	660	590	610	640	660	630	600	830	340	-	
Selenium	-	<0.20	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-	
Silver	-	0.160	0.120	0.110	0.140	<0.10	-	<0.10	<0.10	0.110	<0.10	0.120	<0.10	<0.10	<0.10	<0.10	-	
Sodium	-	222	231	202	270	214	-	217	198	200	178	223	393	397	340	273	-	
Strontium	-	28.5	17.7	24.4	30.3	17.2	-	21.2	19.9	21.0	14.7	23.1	63.4	96.9	51.5	18.7	-	
Sulphur	-	<1000	<1000	<1000	<1000	<1000	-	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	-	
Thallium	-	0.132	0.077	0.087	0.098	0.075	-	0.090	0.078	0.079	0.063	0.094	<0.050	<0.050	<0.050	<0.050	-	
Thorium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tin	-	<2.0	<2.0	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-	
Tellurium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium	-	501	419	363	371	442	-	424	323	344	315	438	1,350	838	834	694	-	
Tungsten	-	<0.50	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	
Uranium	-	0.465	0.347	0.400	0.428	0.316	-	0.336	0.322	0.322	0.303	0.376	0.444	0.374	0.520	0.308	-	
Vanadium	-	94.6	73.7	70.3	75.1	76.7	-	74.5	74.4	74.8	67.6	74.2	141	72.7	82.0	98.0	-	
Zinc	-	192	184	179	205	183	-	180	185	183	171	187	104	77.2	85.3	77.4	-	
Zirconium	-	<1.0	1.40	<1.0	<1.0	1.80	-	1.20	1.10	1.50	1.10	1.20	6.20	5.50	4.20	3.50	-	

All units are in mg/kg unless otherwise noted.
*: RDL= Realized Detection Limits. RDL for historical data are not available.

ISQG: Interim Sediment Quality Guideline

PEL: Probable Effect Level

Appendix 9-B *Sediment Quality Relative Percent Difference
Results, Tenas Project, 2017*

APPENDIX 9-B. SEDIMENT QUALITY QA/QC

1. INTRODUCTION

This report summarizes the quality assurance and quality control (QA/QC) results collected in 2017 to 2019 from sediment quality sites in the Tenas Project area. Sediment quality study design and sampling methodology followed the guidance outlined in the *Water and Air Baseline Guidance Document for Mine Proponents and Operators* (BC MOE 2016), and the *British Columbia Field Sampling Manual* (BC MOE 2013). Table 1-1 presents the samples collected in 2017 to 2019, and Table 1-2 presents the field QA/QC samples collected. These results were reported under ALS work orders L1996387, L2173073, L2336095, L2337906, L2361206, with samples analyzed according to the *British Columbia Environmental Laboratory Manual* (BC MOE 2005).

Table 1-1. Sediment Quality Samples, 2017 to 2019

Site	2017	2018	2019
WQS01	3	NA	1
WQS02	3	NA	1
WQS03-DS	NA	NA	6
WQS04B	NA	NA	1
WQS05	3	NA	1
WQS06-US	NA	NA	6
WQS07	NA	NA	6
WQS08	3	NA	1
WQS09	3	NA	1
WQS11-US	NA	3	1
WQS12	3	NA	1
WQS16	NA	NA	6
WQS17	NA	NA	6
WQS18	NA	NA	6
NA	NA	NA	1

Table 1-2. Sediment Quality QA/QC Samples, 2017 to 2019

QAQC	Site	Replicate	Date Sampled
Field Split	WQS08	3	2017-09-18
Field Split	WQS02	3	2017-09-19
Field Split	WQS12	1	2017-09-20
Field Split	WQS04B	1	2019-08-24
Field Split	WQS06-US	1	2019-10-04
Field Split	WQS06-US	2	2019-10-04
Field Split	WQS06-US	3	2019-10-04
Field Split	WQS06-US	4	2019-10-04
Field Split	WQS06-US	5	2019-10-04

2. LABORATORY QAQC

Quality assurance and quality control measures are in place to evaluate the sensitivity, precision, and accuracy of the laboratory chemical analyses. Sensitivity is evaluated by calculating the percentage of non-detects for each parameter to determine whether the detection limits were sufficiently low to detect all analytes. Laboratory contamination is evaluated using method blanks, precision is assessed using laboratory replicates, and accuracy is determined through the analysis of certified reference material, laboratory control samples, or matrix spikes.

2.1 SENSITIVITY

Sensitivity of lab measurements is expressed as detection limits or reporting limits, and are determined by the sample size and matrix properties as well as the analytical method and instrumentation. Table 2.1-1 summarizes the non-detects in the dataset as well as the maximum and minimum detection limits.

Table 2.1-1. Laboratory Sensitivity, L1996387, L2173073, L2336095, L2337906, L2361206

Class	Analyte	Percent Detected	Min DL	Max DL
Metals	Boron (B)	0	5	10
Metals	Tungsten (W)	0	0.5	0.5
Metals	Sulfur (S)	29.5	1000	1000
Metals	Selenium (Se)	33.8	0.1	0.2
Metals	Mercury (Hg)	35.3	0.005	0.05
Metals	Tin (Sn)	35.3	0.2	2
Metals	Bismuth (Bi)	39.7	0.1	0.2
Metals	Silver (Ag)	51.5	0.05	0.1
Particle Size	% Clay (<4um)	72.5	1	1
Particle Size	% Gravel (>2mm)	87.5	1	1
Metals	Thallium (Tl)	89.7	0.05	0.05
Organic / Inorganic Carbon	Total Organic Carbon	92.5	0.05	0.1
Metals	Zirconium (Zr)	93.2	1	1
Particle Size	% Silt (0.063mm - 4um)	95	1	1
Metals	Aluminum (Al)	100	50	50
Metals	Antimony (Sb)	100	0.1	0.1
Metals	Arsenic (As)	100	0.05	0.1
Metals	Barium (Ba)	100	0.5	0.5
Metals	Beryllium (Be)	100	0.1	0.1
Metals	Cadmium (Cd)	100	0.02	0.05
Metals	Calcium (Ca)	100	50	50
Metals	Chromium (Cr)	100	0.5	0.5
Metals	Cobalt (Co)	100	0.1	0.1
Metals	Copper (Cu)	100	0.5	0.5

Class	Analyte	Percent Detected	Min DL	Max DL
Metals	Iron (Fe)	100	50	50
Metals	Lead (Pb)	100	0.1	0.5
Metals	Lithium (Li)	100	2	5
Metals	Magnesium (Mg)	100	10	20
Metals	Manganese (Mn)	100	0.2	1
Metals	Molybdenum (Mo)	100	0.1	0.1
Metals	Nickel (Ni)	100	0.5	0.5
Metals	Phosphorus (P)	100	50	50
Metals	Potassium (K)	100	100	100
Metals	Sodium (Na)	100	50	100
Metals	Strontium (Sr)	100	0.1	0.5
Metals	Titanium (Ti)	100	1	1
Metals	Uranium (U)	100	0.05	0.05
Metals	Vanadium (V)	100	0.2	0.2
Metals	Zinc (Zn)	100	1	2
Particle Size	% Sand (2.0mm - 0.063mm)	100	1	1
Physical Tests	pH (1:2 soil:water)	100	0.1	0.1

2.2 METHOD BLANKS AND STANDARDS

Method blanks are used to assess laboratory contamination during sample preparation and analysis. Method blank concentrations should be lower than the detection limit, or at minimum, less than 30% of the lowest reported sample concentration.

Surrogate standards are used in some cases to estimate analyte loss during extraction and cleanup. Often, these are isotopically-labelled versions of the analyte. The results are used to correct the reported concentration of the analyte for the recovery of the surrogate standard.

Certified reference material are samples which have been previously characterized for an analyte and have certified reference values and uncertainty associated with them. These samples are externally validated.

Laboratories may also have internal reference material or control samples. These are similar to certified reference material, but do not have external validation and therefore are not as preferred for accuracy validation.

Method blank and accuracy results met all data quality objectives.

2.3 HOLDING TIME EXCEEDANCES

Holding times represent the time limit that a sample may be held without significant degradation of the parameter. All samples were analyzed within the recommended holding time.

2.4 LABORATORY DUPLICATES

Laboratory duplicates are used to determine the analytical precision of a given method for the specific local conditions and concentrations. These samples are subsampled field samples that are analyzed separately and are meant to represent the reproducibility of the analytical method. Variability between laboratory duplicate samples was calculated as the relative percent difference (RPD) between the duplicate samples:

$$RPD = 100 * \frac{|rep1 - rep2|}{[(rep1 + rep2)/2]}$$

With high RPD values representing high variability between the duplicate measurements, and therefore reduced precision. All laboratory duplicate measurements met data quality objectives.

Laboratory duplicate measurements that did not meet data quality objectives are presented in Table 2.4-1.

Table 2.4-1. Laboratory Duplicate RPDs, L1996387, L2173073, L2336095, L2337906, L2361206

Reference	Analyte	Sample Result	Duplicate Result	Detection Limit	RPD	Qual
L1996387-2	Mercury (Hg)	0.0238	0.0392	0.005	49	DUP-H

DUP-H = Duplicate results outside ALS DQO, due to sample heterogeneity.

3. FIELD QAQC

Field quality assurance and quality control measures assessed and sample representativeness of the field program. Sample variation was determined with field splits.

3.1 FIELD SPLITS

Variability in field split samples was calculated for each split sample as the relative percent difference (RPD) between the split samples (see laboratory replicates, above). All field split samples are listed in Table 3.1-1.

Table 3.1-1. Field Split RPDs, L1996387, L2173073, L2336095, L2337906, L2361206

Site	Replicate	Date Sampled	Regular	Duplicate	Analyte	RPD
WQS08	3	2017-09-18	25200	24400	Aluminum (Al)	3.2
WQS08	3	2017-09-18	0.43	0.42	Antimony (Sb)	-
WQS08	3	2017-09-18	7.42	6.85	Arsenic (As)	8
WQS08	3	2017-09-18	257	242	Barium (Ba)	6
WQS08	3	2017-09-18	0.43	0.43	Beryllium (Be)	-
WQS08	3	2017-09-18	0.05	0.05	Bismuth (Bi)	-
WQS08	3	2017-09-18	5	5	Boron (B)	-
WQS08	3	2017-09-18	0.33	0.318	Cadmium (Cd)	3.7
WQS08	3	2017-09-18	13400	12800	Calcium (Ca)	4.6
WQS08	3	2017-09-18	33.3	29.8	Chromium (Cr)	11.1
WQS08	3	2017-09-18	15.9	15	Cobalt (Co)	5.8
WQS08	3	2017-09-18	41.4	38	Copper (Cu)	8.6
WQS08	3	2017-09-18	50500	46900	Iron (Fe)	7.4
WQS08	3	2017-09-18	12	12.1	Lead (Pb)	0.8
WQS08	3	2017-09-18	14.1	13.7	Lithium (Li)	-
WQS08	3	2017-09-18	10400	9920	Magnesium (Mg)	4.7
WQS08	3	2017-09-18	1220	1100	Manganese (Mn)	10.3
WQS08	3	2017-09-18	0.0131	0.0193	Mercury (Hg)	-
WQS08	3	2017-09-18	0.69	0.76	Molybdenum (Mo)	9.7
WQS08	3	2017-09-18	20.1	18.6	Nickel (Ni)	7.8
WQS08	3	2017-09-18	943	848	Phosphorus (P)	10.6
WQS08	3	2017-09-18	1440	1440	Potassium (K)	0
WQS08	3	2017-09-18	0.12	0.12	Selenium (Se)	-
WQS08	3	2017-09-18	0.12	0.104	Silver (Ag)	-
WQS08	3	2017-09-18	740	680	Sodium (Na)	8.5
WQS08	3	2017-09-18	130	122	Strontium (Sr)	6.3
WQS08	3	2017-09-18	0.053	0.055	Thallium (Tl)	-
WQS08	3	2017-09-18	0.52	0.51	Tin (Sn)	-
WQS08	3	2017-09-18	1170	1180	Titanium (Ti)	0.9

Site	Replicate	Date Sampled	Regular	Duplicate	Analyte	RPD
WQS08	3	2017-09-18	0.738	0.786	Uranium (U)	6.3
WQS08	3	2017-09-18	131	119	Vanadium (V)	9.6
WQS08	3	2017-09-18	97.9	93.4	Zinc (Zn)	4.7
WQS08	3	2017-09-18	0.195	0.101	Total Organic Carbon	-
WQS08	3	2017-09-18	1.2	1.2	% Clay (<4um)	-
WQS08	3	2017-09-18	0.5	1.2	% Gravel (>2mm)	-
WQS08	3	2017-09-18	90.8	90.8	% Sand (2.0mm - 0.063mm)	0
WQS08	3	2017-09-18	7.4	6.8	% Silt (0.063mm - 4um)	8.5
WQS08	3	2017-09-18	7.5	7.66	pH (1:2 soil:water)	2.1
WQS02	3	2017-09-19	24100	33800	Aluminum (Al)	33.5
WQS02	3	2017-09-19	1.04	1.08	Antimony (Sb)	3.8
WQS02	3	2017-09-19	10.6	13.3	Arsenic (As)	22.6
WQS02	3	2017-09-19	178	228	Barium (Ba)	24.6
WQS02	3	2017-09-19	0.33	0.38	Beryllium (Be)	-
WQS02	3	2017-09-19	0.05	0.05	Bismuth (Bi)	-
WQS02	3	2017-09-19	5	5	Boron (B)	-
WQS02	3	2017-09-19	0.218	0.271	Cadmium (Cd)	21.7
WQS02	3	2017-09-19	13900	20600	Calcium (Ca)	38.8
WQS02	3	2017-09-19	34.8	43.9	Chromium (Cr)	23.1
WQS02	3	2017-09-19	18.1	22.4	Cobalt (Co)	21.2
WQS02	3	2017-09-19	36	46.3	Copper (Cu)	25
WQS02	3	2017-09-19	43500	50400	Iron (Fe)	14.7
WQS02	3	2017-09-19	5.98	6.64	Lead (Pb)	10.5
WQS02	3	2017-09-19	15.5	17.4	Lithium (Li)	-
WQS02	3	2017-09-19	10300	12800	Magnesium (Mg)	21.6
WQS02	3	2017-09-19	1240	1610	Manganese (Mn)	26
WQS02	3	2017-09-19	0.0176	0.0214	Mercury (Hg)	-
WQS02	3	2017-09-19	0.32	0.41	Molybdenum (Mo)	-
WQS02	3	2017-09-19	26.7	33.2	Nickel (Ni)	21.7
WQS02	3	2017-09-19	508	597	Phosphorus (P)	16.1
WQS02	3	2017-09-19	1070	1310	Potassium (K)	20.2
WQS02	3	2017-09-19	0.05	0.05	Selenium (Se)	-
WQS02	3	2017-09-19	0.056	0.108	Silver (Ag)	-
WQS02	3	2017-09-19	580	810	Sodium (Na)	33.1
WQS02	3	2017-09-19	83.3	115	Strontium (Sr)	32
WQS02	3	2017-09-19	0.05	0.054	Thallium (Tl)	-
WQS02	3	2017-09-19	0.48	0.52	Tin (Sn)	-
WQS02	3	2017-09-19	850	1150	Titanium (Ti)	30
WQS02	3	2017-09-19	0.353	0.397	Uranium (U)	11.7
WQS02	3	2017-09-19	94.9	119	Vanadium (V)	22.5
WQS02	3	2017-09-19	66.2	77.9	Zinc (Zn)	16.2

Site	Replicate	Date Sampled	Regular	Duplicate	Analyte	RPD
WQS02	3	2017-09-19	0.245	0.079	Total Organic Carbon	-
WQS02	3	2017-09-19	0.5	0.5	% Clay (<4um)	-
WQS02	3	2017-09-19	17.2	19.8	% Gravel (>2mm)	14.1
WQS02	3	2017-09-19	79.4	76	% Sand (2.0mm - 0.063mm)	4.4
WQS02	3	2017-09-19	2.6	3.2	% Silt (0.063mm - 4um)	-
WQS02	3	2017-09-19	8.29	8.19	pH (1:2 soil:water)	1.2
WQS12	1	2017-09-20	20100	16800	Aluminum (Al)	17.9
WQS12	1	2017-09-20	0.57	0.53	Antimony (Sb)	7.3
WQS12	1	2017-09-20	9.75	8.03	Arsenic (As)	19.3
WQS12	1	2017-09-20	222	192	Barium (Ba)	14.5
WQS12	1	2017-09-20	0.41	0.39	Beryllium (Be)	-
WQS12	1	2017-09-20	0.11	0.11	Bismuth (Bi)	-
WQS12	1	2017-09-20	5	5	Boron (B)	-
WQS12	1	2017-09-20	0.317	0.285	Cadmium (Cd)	10.6
WQS12	1	2017-09-20	10100	8770	Calcium (Ca)	14.1
WQS12	1	2017-09-20	34.7	30.7	Chromium (Cr)	12.2
WQS12	1	2017-09-20	14	12.2	Cobalt (Co)	13.7
WQS12	1	2017-09-20	37.1	31.7	Copper (Cu)	15.7
WQS12	1	2017-09-20	43900	39200	Iron (Fe)	11.3
WQS12	1	2017-09-20	9.77	9.1	Lead (Pb)	7.1
WQS12	1	2017-09-20	12.7	11.9	Lithium (Li)	-
WQS12	1	2017-09-20	8620	7740	Magnesium (Mg)	10.8
WQS12	1	2017-09-20	1120	959	Manganese (Mn)	15.5
WQS12	1	2017-09-20	0.021	0.0285	Mercury (Hg)	30.3
WQS12	1	2017-09-20	0.7	0.64	Molybdenum (Mo)	9
WQS12	1	2017-09-20	22.3	19.4	Nickel (Ni)	13.9
WQS12	1	2017-09-20	1030	886	Phosphorus (P)	15
WQS12	1	2017-09-20	1220	900	Potassium (K)	30.2
WQS12	1	2017-09-20	0.18	0.16	Selenium (Se)	-
WQS12	1	2017-09-20	0.117	0.1	Silver (Ag)	-
WQS12	1	2017-09-20	530	450	Sodium (Na)	16.3
WQS12	1	2017-09-20	68.2	59.3	Strontium (Sr)	14
WQS12	1	2017-09-20	0.061	0.053	Thallium (Tl)	-
WQS12	1	2017-09-20	0.5	0.44	Tin (Sn)	-
WQS12	1	2017-09-20	1290	1050	Titanium (Ti)	20.5
WQS12	1	2017-09-20	0.712	0.664	Uranium (U)	7
WQS12	1	2017-09-20	114	98.8	Vanadium (V)	14.3
WQS12	1	2017-09-20	97.9	88.4	Zinc (Zn)	10.2
WQS12	1	2017-09-20	0.313	0.299	Total Organic Carbon	4.6
WQS12	1	2017-09-20	1.8	1.9	% Clay (<4um)	-
WQS12	1	2017-09-20	7.4	7	% Gravel (>2mm)	5.6

Site	Replicate	Date Sampled	Regular	Duplicate	Analyte	RPD
WQS12	1	2017-09-20	77	76.9	% Sand (2.0mm - 0.063mm)	0.1
WQS12	1	2017-09-20	13.8	14.2	% Silt (0.063mm - 4um)	2.9
WQS12	1	2017-09-20	7.42	7.38	pH (1:2 soil:water)	0.5
WQS04B	1	2019-08-24	19500	16000	Aluminum (Al)	19.7
WQS04B	1	2019-08-24	0.66	0.69	Antimony (Sb)	4.4
WQS04B	1	2019-08-24	9.59	12.6	Arsenic (As)	27.1
WQS04B	1	2019-08-24	172	341	Barium (Ba)	65.9
WQS04B	1	2019-08-24	0.33	0.4	Beryllium (Be)	-
WQS04B	1	2019-08-24	0.1	0.1	Bismuth (Bi)	-
WQS04B	1	2019-08-24	2.5	2.5	Boron (B)	-
WQS04B	1	2019-08-24	0.132	0.422	Cadmium (Cd)	104.7
WQS04B	1	2019-08-24	10000	6980	Calcium (Ca)	35.6
WQS04B	1	2019-08-24	27.7	24.1	Chromium (Cr)	13.9
WQS04B	1	2019-08-24	13.3	15.1	Cobalt (Co)	12.7
WQS04B	1	2019-08-24	25.8	48.4	Copper (Cu)	60.9
WQS04B	1	2019-08-24	41500	39400	Iron (Fe)	5.2
WQS04B	1	2019-08-24	5.39	7.85	Lead (Pb)	37.2
WQS04B	1	2019-08-24	13.5	10.8	Lithium (Li)	22.2
WQS04B	1	2019-08-24	9570	7340	Magnesium (Mg)	26.4
WQS04B	1	2019-08-24	705	966	Manganese (Mn)	31.2
WQS04B	1	2019-08-24	0.025	0.025	Mercury (Hg)	-
WQS04B	1	2019-08-24	0.58	1.03	Molybdenum (Mo)	55.9
WQS04B	1	2019-08-24	22.9	24.7	Nickel (Ni)	7.6
WQS04B	1	2019-08-24	573	630	Phosphorus (P)	9.5
WQS04B	1	2019-08-24	690	860	Potassium (K)	21.9
WQS04B	1	2019-08-24	0.1	0.25	Selenium (Se)	-
WQS04B	1	2019-08-24	0.05	0.05	Silver (Ag)	-
WQS04B	1	2019-08-24	478	304	Sodium (Na)	44.5
WQS04B	1	2019-08-24	94.6	53.2	Strontium (Sr)	56
WQS04B	1	2019-08-24	500	500	Sulfur (S)	-
WQS04B	1	2019-08-24	0.025	0.075	Thallium (Tl)	-
WQS04B	1	2019-08-24	1	1	Tin (Sn)	-
WQS04B	1	2019-08-24	879	400	Titanium (Ti)	74.9
WQS04B	1	2019-08-24	0.25	0.25	Tungsten (W)	-
WQS04B	1	2019-08-24	0.366	0.476	Uranium (U)	26.1
WQS04B	1	2019-08-24	87.9	72	Vanadium (V)	19.9
WQS04B	1	2019-08-24	65.2	101	Zinc (Zn)	43.1
WQS04B	1	2019-08-24	7.2	3.3	Zirconium (Zr)	74.3
WQS04B	1	2019-08-24	0.319	1.93	Total Organic Carbon	143.3
WQS04B	1	2019-08-24	1.7	7.1	% Clay (<4um)	122.7
WQS04B	1	2019-08-24	1.9	5.5	% Gravel (>2mm)	97.3

Site	Replicate	Date Sampled	Regular	Duplicate	Analyte	RPD
WQS04B	1	2019-08-24	87.5	58.2	% Sand (2.0mm - 0.063mm)	40.2
WQS04B	1	2019-08-24	9	29.3	% Silt (0.063mm - 4um)	106
WQS04B	1	2019-08-24	7.71	7.3	pH (1:2 soil:water)	5.5
WQS06-US	1	2019-10-04	14700	15300	Aluminum (Al)	4
WQS06-US	1	2019-10-04	0.99	0.89	Antimony (Sb)	10.6
WQS06-US	1	2019-10-04	15.3	13	Arsenic (As)	16.3
WQS06-US	1	2019-10-04	300	296	Barium (Ba)	1.3
WQS06-US	1	2019-10-04	0.44	0.39	Beryllium (Be)	-
WQS06-US	1	2019-10-04	0.54	0.23	Bismuth (Bi)	-
WQS06-US	1	2019-10-04	2.5	2.5	Boron (B)	-
WQS06-US	1	2019-10-04	1.09	0.672	Cadmium (Cd)	47.4
WQS06-US	1	2019-10-04	7610	5900	Calcium (Ca)	25.3
WQS06-US	1	2019-10-04	26.1	24.7	Chromium (Cr)	5.5
WQS06-US	1	2019-10-04	19.4	16.2	Cobalt (Co)	18
WQS06-US	1	2019-10-04	112	60.9	Copper (Cu)	59.1
WQS06-US	1	2019-10-04	43500	43600	Iron (Fe)	0.2
WQS06-US	1	2019-10-04	9.72	7.83	Lead (Pb)	21.5
WQS06-US	1	2019-10-04	13.2	14.1	Lithium (Li)	6.6
WQS06-US	1	2019-10-04	7540	9010	Magnesium (Mg)	17.8
WQS06-US	1	2019-10-04	1200	1090	Manganese (Mn)	9.6
WQS06-US	1	2019-10-04	0.025	0.025	Mercury (Hg)	-
WQS06-US	1	2019-10-04	1.55	1.28	Molybdenum (Mo)	19.1
WQS06-US	1	2019-10-04	25.4	23.2	Nickel (Ni)	9.1
WQS06-US	1	2019-10-04	575	584	Phosphorus (P)	1.6
WQS06-US	1	2019-10-04	950	940	Potassium (K)	1.1
WQS06-US	1	2019-10-04	0.31	0.1	Selenium (Se)	-
WQS06-US	1	2019-10-04	0.16	0.05	Silver (Ag)	-
WQS06-US	1	2019-10-04	278	280	Sodium (Na)	0.7
WQS06-US	1	2019-10-04	40.3	36.9	Strontium (Sr)	8.8
WQS06-US	1	2019-10-04	1100	1200	Sulfur (S)	-
WQS06-US	1	2019-10-04	0.103	0.083	Thallium (Tl)	-
WQS06-US	1	2019-10-04	1	1	Tin (Sn)	-
WQS06-US	1	2019-10-04	325	517	Titanium (Ti)	45.6
WQS06-US	1	2019-10-04	0.25	0.25	Tungsten (W)	-
WQS06-US	1	2019-10-04	0.718	0.386	Uranium (U)	60.1
WQS06-US	1	2019-10-04	72.4	80.8	Vanadium (V)	11
WQS06-US	1	2019-10-04	175	131	Zinc (Zn)	28.8
WQS06-US	1	2019-10-04	1.6	3.1	Zirconium (Zr)	-
WQS06-US	1	2019-10-04	7.55	7.76	pH (1:2 soil:water)	2.7
WQS06-US	2	2019-10-04	14500	16100	Aluminum (Al)	10.5
WQS06-US	2	2019-10-04	0.92	0.85	Antimony (Sb)	7.9

Site	Replicate	Date Sampled	Regular	Duplicate	Analyte	RPD
WQS06-US	2	2019-10-04	14	12.7	Arsenic (As)	9.7
WQS06-US	2	2019-10-04	245	248	Barium (Ba)	1.2
WQS06-US	2	2019-10-04	0.39	0.42	Beryllium (Be)	-
WQS06-US	2	2019-10-04	0.26	0.33	Bismuth (Bi)	-
WQS06-US	2	2019-10-04	2.5	2.5	Boron (B)	-
WQS06-US	2	2019-10-04	0.642	1.03	Cadmium (Cd)	46.4
WQS06-US	2	2019-10-04	6400	6280	Calcium (Ca)	1.9
WQS06-US	2	2019-10-04	25.8	29.3	Chromium (Cr)	12.7
WQS06-US	2	2019-10-04	16.7	18.1	Cobalt (Co)	8
WQS06-US	2	2019-10-04	66.3	90.4	Copper (Cu)	30.8
WQS06-US	2	2019-10-04	47800	43200	Iron (Fe)	10.1
WQS06-US	2	2019-10-04	8.82	8.19	Lead (Pb)	7.4
WQS06-US	2	2019-10-04	13.2	15.6	Lithium (Li)	16.7
WQS06-US	2	2019-10-04	7970	10200	Magnesium (Mg)	24.5
WQS06-US	2	2019-10-04	975	1150	Manganese (Mn)	16.5
WQS06-US	2	2019-10-04	0.025	0.025	Mercury (Hg)	-
WQS06-US	2	2019-10-04	1.81	1.11	Molybdenum (Mo)	47.9
WQS06-US	2	2019-10-04	23.8	26.7	Nickel (Ni)	11.5
WQS06-US	2	2019-10-04	536	601	Phosphorus (P)	11.4
WQS06-US	2	2019-10-04	930	890	Potassium (K)	4.4
WQS06-US	2	2019-10-04	0.1	0.23	Selenium (Se)	-
WQS06-US	2	2019-10-04	0.1	0.11	Silver (Ag)	-
WQS06-US	2	2019-10-04	291	293	Sodium (Na)	0.7
WQS06-US	2	2019-10-04	37.2	36.2	Strontium (Sr)	2.7
WQS06-US	2	2019-10-04	1100	500	Sulfur (S)	-
WQS06-US	2	2019-10-04	0.09	0.088	Thallium (Tl)	-
WQS06-US	2	2019-10-04	1	1	Tin (Sn)	-
WQS06-US	2	2019-10-04	425	467	Titanium (Ti)	9.4
WQS06-US	2	2019-10-04	0.25	0.25	Tungsten (W)	-
WQS06-US	2	2019-10-04	0.431	0.495	Uranium (U)	13.8
WQS06-US	2	2019-10-04	79.8	78.5	Vanadium (V)	1.6
WQS06-US	2	2019-10-04	139	161	Zinc (Zn)	14.7
WQS06-US	2	2019-10-04	3.4	2.1	Zirconium (Zr)	-
WQS06-US	2	2019-10-04	7.83	7.7	pH (1:2 soil:water)	1.7
WQS06-US	3	2019-10-04	14400	13600	Aluminum (Al)	5.7
WQS06-US	3	2019-10-04	0.87	1.21	Antimony (Sb)	32.7
WQS06-US	3	2019-10-04	12.8	13.6	Arsenic (As)	6.1
WQS06-US	3	2019-10-04	273	248	Barium (Ba)	9.6
WQS06-US	3	2019-10-04	0.36	0.4	Beryllium (Be)	-
WQS06-US	3	2019-10-04	0.27	0.54	Bismuth (Bi)	-
WQS06-US	3	2019-10-04	2.5	2.5	Boron (B)	-

Site	Replicate	Date Sampled	Regular	Duplicate	Analyte	RPD
WQS06-US	3	2019-10-04	0.697	0.699	Cadmium (Cd)	0.3
WQS06-US	3	2019-10-04	6060	5740	Calcium (Ca)	5.4
WQS06-US	3	2019-10-04	25	25	Chromium (Cr)	0
WQS06-US	3	2019-10-04	16.4	15.4	Cobalt (Co)	6.3
WQS06-US	3	2019-10-04	63.5	60	Copper (Cu)	5.7
WQS06-US	3	2019-10-04	45000	52200	Iron (Fe)	14.8
WQS06-US	3	2019-10-04	8.56	8.35	Lead (Pb)	2.5
WQS06-US	3	2019-10-04	12.8	13.2	Lithium (Li)	3.1
WQS06-US	3	2019-10-04	7870	9050	Magnesium (Mg)	13.9
WQS06-US	3	2019-10-04	1020	976	Manganese (Mn)	4.4
WQS06-US	3	2019-10-04	0.025	0.025	Mercury (Hg)	-
WQS06-US	3	2019-10-04	1.32	1.47	Molybdenum (Mo)	10.8
WQS06-US	3	2019-10-04	23.6	22.8	Nickel (Ni)	3.4
WQS06-US	3	2019-10-04	541	567	Phosphorus (P)	4.7
WQS06-US	3	2019-10-04	940	790	Potassium (K)	17.3
WQS06-US	3	2019-10-04	0.1	0.1	Selenium (Se)	-
WQS06-US	3	2019-10-04	0.05	0.05	Silver (Ag)	-
WQS06-US	3	2019-10-04	328	259	Sodium (Na)	23.5
WQS06-US	3	2019-10-04	34.9	34.3	Strontium (Sr)	1.7
WQS06-US	3	2019-10-04	500	1900	Sulfur (S)	-
WQS06-US	3	2019-10-04	0.083	0.083	Thallium (Tl)	-
WQS06-US	3	2019-10-04	1	1	Tin (Sn)	-
WQS06-US	3	2019-10-04	471	534	Titanium (Ti)	12.5
WQS06-US	3	2019-10-04	0.25	0.25	Tungsten (W)	-
WQS06-US	3	2019-10-04	0.433	0.397	Uranium (U)	8.7
WQS06-US	3	2019-10-04	79.9	86.6	Vanadium (V)	8
WQS06-US	3	2019-10-04	144	135	Zinc (Zn)	6.5
WQS06-US	3	2019-10-04	3.1	3.5	Zirconium (Zr)	-
WQS06-US	3	2019-10-04	7.81	7.72	pH (1:2 soil:water)	1.2
WQS06-US	4	2019-10-04	14500	13000	Aluminum (Al)	10.9
WQS06-US	4	2019-10-04	0.7	0.9	Antimony (Sb)	25
WQS06-US	4	2019-10-04	9.28	13.4	Arsenic (As)	36.3
WQS06-US	4	2019-10-04	175	237	Barium (Ba)	30.1
WQS06-US	4	2019-10-04	0.31	0.36	Beryllium (Be)	-
WQS06-US	4	2019-10-04	0.1	0.4	Bismuth (Bi)	-
WQS06-US	4	2019-10-04	2.5	2.5	Boron (B)	-
WQS06-US	4	2019-10-04	0.507	0.589	Cadmium (Cd)	15
WQS06-US	4	2019-10-04	5110	5340	Calcium (Ca)	4.4
WQS06-US	4	2019-10-04	32.6	25.8	Chromium (Cr)	23.3
WQS06-US	4	2019-10-04	15	14.9	Cobalt (Co)	0.7
WQS06-US	4	2019-10-04	47.8	52.8	Copper (Cu)	9.9

Site	Replicate	Date Sampled	Regular	Duplicate	Analyte	RPD
WQS06-US	4	2019-10-04	43800	46500	Iron (Fe)	6
WQS06-US	4	2019-10-04	6.71	8.09	Lead (Pb)	18.6
WQS06-US	4	2019-10-04	14.8	12.8	Lithium (Li)	14.5
WQS06-US	4	2019-10-04	10300	8310	Magnesium (Mg)	21.4
WQS06-US	4	2019-10-04	895	970	Manganese (Mn)	8
WQS06-US	4	2019-10-04	0.025	0.025	Mercury (Hg)	-
WQS06-US	4	2019-10-04	0.95	1.39	Molybdenum (Mo)	37.6
WQS06-US	4	2019-10-04	25	22.4	Nickel (Ni)	11
WQS06-US	4	2019-10-04	626	544	Phosphorus (P)	14
WQS06-US	4	2019-10-04	730	720	Potassium (K)	1.4
WQS06-US	4	2019-10-04	0.1	0.1	Selenium (Se)	-
WQS06-US	4	2019-10-04	0.05	0.05	Silver (Ag)	-
WQS06-US	4	2019-10-04	277	247	Sodium (Na)	11.5
WQS06-US	4	2019-10-04	26.6	29.7	Strontium (Sr)	11
WQS06-US	4	2019-10-04	500	1500	Sulfur (S)	-
WQS06-US	4	2019-10-04	0.064	0.095	Thallium (Tl)	-
WQS06-US	4	2019-10-04	1	1	Tin (Sn)	-
WQS06-US	4	2019-10-04	581	505	Titanium (Ti)	14
WQS06-US	4	2019-10-04	0.25	0.25	Tungsten (W)	-
WQS06-US	4	2019-10-04	0.358	0.402	Uranium (U)	11.6
WQS06-US	4	2019-10-04	81.8	86.8	Vanadium (V)	5.9
WQS06-US	4	2019-10-04	123	121	Zinc (Zn)	1.6
WQS06-US	4	2019-10-04	3.5	3.2	Zirconium (Zr)	-
WQS06-US	4	2019-10-04	7.99	7.67	pH (1:2 soil:water)	4.1
WQS06-US	5	2019-10-04	14500	14700	Aluminum (Al)	1.4
WQS06-US	5	2019-10-04	0.94	0.89	Antimony (Sb)	5.5
WQS06-US	5	2019-10-04	12.8	13.8	Arsenic (As)	7.5
WQS06-US	5	2019-10-04	177	243	Barium (Ba)	31.4
WQS06-US	5	2019-10-04	0.33	0.44	Beryllium (Be)	-
WQS06-US	5	2019-10-04	0.2	0.29	Bismuth (Bi)	-
WQS06-US	5	2019-10-04	2.5	2.5	Boron (B)	-
WQS06-US	5	2019-10-04	0.519	1.01	Cadmium (Cd)	64.2
WQS06-US	5	2019-10-04	5650	6000	Calcium (Ca)	6
WQS06-US	5	2019-10-04	25.2	25.5	Chromium (Cr)	1.2
WQS06-US	5	2019-10-04	15.8	18.6	Cobalt (Co)	16.3
WQS06-US	5	2019-10-04	51.3	92.9	Copper (Cu)	57.7
WQS06-US	5	2019-10-04	46400	48100	Iron (Fe)	3.6
WQS06-US	5	2019-10-04	7.96	7.99	Lead (Pb)	0.4
WQS06-US	5	2019-10-04	13.8	14.1	Lithium (Li)	2.2
WQS06-US	5	2019-10-04	8690	9350	Magnesium (Mg)	7.3
WQS06-US	5	2019-10-04	1000	1190	Manganese (Mn)	17.4

Site	Replicate	Date Sampled	Regular	Duplicate	Analyte	RPD
WQS06-US	5	2019-10-04	0.025	0.025	Mercury (Hg)	-
WQS06-US	5	2019-10-04	1.26	1.86	Molybdenum (Mo)	38.5
WQS06-US	5	2019-10-04	21.8	24.3	Nickel (Ni)	10.8
WQS06-US	5	2019-10-04	549	649	Phosphorus (P)	16.7
WQS06-US	5	2019-10-04	900	850	Potassium (K)	5.7
WQS06-US	5	2019-10-04	0.1	0.27	Selenium (Se)	-
WQS06-US	5	2019-10-04	0.05	0.11	Silver (Ag)	-
WQS06-US	5	2019-10-04	418	249	Sodium (Na)	50.7
WQS06-US	5	2019-10-04	32	31.4	Strontium (Sr)	1.9
WQS06-US	5	2019-10-04	500	500	Sulfur (S)	-
WQS06-US	5	2019-10-04	0.085	0.093	Thallium (Tl)	-
WQS06-US	5	2019-10-04	1	1	Tin (Sn)	-
WQS06-US	5	2019-10-04	606	415	Titanium (Ti)	37.4
WQS06-US	5	2019-10-04	0.25	0.25	Tungsten (W)	-
WQS06-US	5	2019-10-04	0.437	0.487	Uranium (U)	10.8
WQS06-US	5	2019-10-04	85.5	82.2	Vanadium (V)	3.9
WQS06-US	5	2019-10-04	127	166	Zinc (Zn)	26.6
WQS06-US	5	2019-10-04	3.9	2.3	Zirconium (Zr)	-
WQS06-US	5	2019-10-04	7.96	7.79	pH (1:2 soil:water)	2.2

Notes:

All units are in mg/kg unless otherwise noted.

"-" = not applicable when values are less than five times the detection limit.

Red italicized values exceed the 20% relative percent difference and are more than five times the detection limit.

Red bolded values exceed the 50% relative percent difference and are more than five times the detection limit.

4. REFERENCES

- BC MOE. 2005. *British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air Samples*. Victoria, BC.
- BC MOE. 2013. *British Columbia Field Sampling Manual - For continuous monitoring and the collection of air, air-emission, water, wastewater, soil, sediment and biological samples*. Victoria, BC.
- BC MOE. 2016. *Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators*. Victoria, BC.

Appendix 10-A *Periphyton Biomass (as Chlorophyll a),
Tenas Project, 1987 to 2019*

Appendix 10-A. Periphyton Biomass (as Chlorophyll *a*), Tenas Project, 1987 to 2019

Site	Replicate	Sample ID	Date	ALS Sample ID	Chlorophyll <i>a</i> (µg)	Detection Limit (µg)	Filtered Volume (mL)	Total Volume (mL)	Percent Filtered	Area Sampled (cm ²)	Chlorophyll <i>a</i> (µg/cm ²)
WQS11-US	1	WQS11 REP 1	20-Sep-2018	L2173073-1	1.96	0.01	50	332	0.15	58.9	0.221
WQS11-US	2	WQS11 REP 2	20-Sep-2018	L2173073-2	31.9	0.2	50	218	0.23	58.9	2.361
WQS11-US	3	WQS11 REP 3	20-Sep-2018	L2173073-3	28	0.2	50	220	0.23	58.9	2.092
WQS01	1	WQS01 REP 1	20-Sep-2017	L2019411-1	8.69	0.05	50	155	0.32	58.9	0.457
WQS01	2	WQS01 REP 2	20-Sep-2017	L2019411-2	4.54	0.02	50	223	0.22	58.9	0.344
WQS01	3	WQS01 REP 3	20-Sep-2017	L2019411-3	4.46	0.02	50	191	0.26	58.9	0.289
WQS02	1	WQS02 REP 1	19-Sep-2017	L2019411-4	14.1	0.05	50	102	0.49	58.9	0.488
WQS02	2	WQS02 REP 2	19-Sep-2017	L2019411-5	5.62	0.02	50	217	0.23	58.9	0.414
WQS02	3	WQS02 REP 3	19-Sep-2017	L2019411-6	4.47	0.02	50	112	0.45	58.9	0.170
WQS05	1	WQS05 REP 1	18-Sep-2017	L2019411-7	0.313	0.01	40	90	0.44	58.9	0.012
WQS05	2	WQS05 REP 2	18-Sep-2017	L2019411-8	3.51	0.02	50	96	0.52	58.9	0.114
WQS05	3	WQS05 REP 3	18-Sep-2017	L2019411-9	1.89	0.01	50	108	0.46	58.9	0.069
WQS08	1	WQS08 REP 1	18-Sep-2017	L2019411-10	10.5	0.05	50	170	0.29	58.9	0.606
WQS08	2	WQS08 REP 2	18-Sep-2017	L2019411-11	36.3	0.2	50	228	0.22	58.9	2.810
WQS08	3	WQS08 REP 3	18-Sep-2017	L2019411-12	21.1	0.1	50	347	0.14	58.9	2.486
WQS09	1	WQS09 REP 1	19-Sep-2017	L2019411-13	26.9	0.1	50	260	0.19	58.9	2.375
WQS09	2	WQS09 REP 2	19-Sep-2017	L2019411-14	24.7	0.1	50	428	0.12	58.9	3.589
WQS09	3	WQS09 REP 3	19-Sep-2017	L2019411-15	27.4	0.1	50	352	0.14	58.9	3.275
WQS12	1	WQS12 REP 1	20-Sep-2017	L2019411-16	14	0.05	50	361	0.14	58.9	1.716
WQS12	2	WQS12 REP 2	20-Sep-2017	L2019411-17	12.9	0.05	50	278	0.18	58.9	1.218
WQS12	3	WQS12 REP 3	20-Sep-2017	L2019411-18	12.4	0.05	50	283	0.18	58.9	1.191
400434	1	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	11-Sep-1987								0.500
400434	2	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	11-Sep-1987								1.020
400434	3	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	11-Sep-1987								0.770
400434	1	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	31-Aug-1988								0.540
400434	2	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	31-Aug-1988								0.610
400434	3	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	31-Aug-1988								0.680
400434	4	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	31-Aug-1988								0.720
400434	5	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	31-Aug-1988								0.460
400434	6	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	31-Aug-1988								0.710
400434	1	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	21-Aug-1989								0.840
400434	2	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	21-Aug-1989								0.770
400434	3	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	21-Aug-1989								3.310
400434	4	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	21-Aug-1989								1.080
400434	5	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	21-Aug-1989								0.550
400434	6	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	21-Aug-1989								0.740
400434	1	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	27-Aug-1990								0.730
400434	2	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	27-Aug-1990								1.160
400434	3	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	27-Aug-1990								1.360
400434	4	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	27-Aug-1990								2.830
400434	5	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	27-Aug-1990								0.740
400434	6	BULKLEY R UPSTREAM FROM SMITHERS SEWAGE	27-Aug-1990								2.010
400435	1	BULKLEY R. IDZ AT SMITHERS	11-Sep-1987								1.390
400435	2	BULKLEY R. IDZ AT SMITHERS	11-Sep-1987								0.960
400435	3	BULKLEY R. IDZ AT SMITHERS	11-Sep-1987								1.420
400435	1	BULKLEY R. IDZ AT SMITHERS	31-Aug-1988								0.520
400435	2	BULKLEY R. IDZ AT SMITHERS	31-Aug-1988								0.460
400435	3	BULKLEY R. IDZ AT SMITHERS	31-Aug-1988								0.580
400435	4	BULKLEY R. IDZ AT SMITHERS	31-Aug-1988								0.400
400435	5	BULKLEY R. IDZ AT SMITHERS	31-Aug-1988								0.490
400435	6	BULKLEY R. IDZ AT SMITHERS	31-Aug-1988								0.650
400435	1	BULKLEY R. IDZ AT SMITHERS	21-Aug-1989								0.470
400435	2	BULKLEY R. IDZ AT SMITHERS	21-Aug-1989								1.970
400435	3	BULKLEY R. IDZ AT SMITHERS	21-Aug-1989								0.830
400435	4	BULKLEY R. IDZ AT SMITHERS	21-Aug-1989								3.210
400435	5	BULKLEY R. IDZ AT SMITHERS	21-Aug-1989								0.570

Appendix 10-A. Periphyton Biomass (as Chlorophyll *a*), Tenas Project, 1987 to 2019

Site	Replicate	Sample ID	Date	ALS Sample ID	Chlorophyll <i>a</i> (µg)	Detection Limit (µg)	Filtered Volume (mL)	Total Volume (mL)	Percent Filtered	Area Sampled (cm²)	Chlorophyll <i>a</i> (µg/cm²)
400435	6	BULKLEY R. IDZ AT SMITHERS	21-Aug-1989								1.060
400435	1	BULKLEY R. IDZ AT SMITHERS	27-Aug-1990								2.170
400435	2	BULKLEY R. IDZ AT SMITHERS	27-Aug-1990								2.300
400435	3	BULKLEY R. IDZ AT SMITHERS	27-Aug-1990								1.460
400435	4	BULKLEY R. IDZ AT SMITHERS	27-Aug-1990								1.660
400435	5	BULKLEY R. IDZ AT SMITHERS	27-Aug-1990								1.270
400435	6	BULKLEY R. IDZ AT SMITHERS	27-Aug-1990								3.190
WQS01	1	WQS-01 REP 1	Oct-2019	L2337906-1	6.3	0.03	-	-	1	19.6	0.321
WQS01	2	WQS-01 REP 2	Oct-2019	L2337906-5	33.2	0.2	-	-	1	19.6	1.694
WQS01	3	WQS-01 REP 3	Oct-2019	L2337906-6	4.5	0.03	-	-	1	19.6	0.230
WQS02	1	WQS-02 REP 1	Oct-2019	L2337906-2	5.2	0.03	-	-	1	19.6	0.264
WQS02	2	WQS-02 REP 2	Oct-2019	L2337906-7	18.5	0.1	-	-	1	19.6	0.944
WQS02	3	WQS-02 REP 3	Oct-2019	L2337906-8	16.2	0.1	-	-	1	19.6	0.827
WQS04B	1	WQS-04B REP1	25-Aug-2019	L2336095-25	18.9	0.07	-	-	1	19.6	0.964
WQS04B	1	DUP REP1	25-Aug-2019	L2336095-26	4.0	0.02	-	-	1	19.6	0.203
WQS04B	2	WQS-04B REP2	25-Aug-2019	L2336095-39	12.1	0.04	-	-	1	19.6	0.617
WQS04B	2	DUP REP2	25-Aug-2019	L2336095-41	18.2	0.07	-	-	1	19.6	0.929
WQS04B	3	WQS-04B REP3	25-Aug-2019	L2336095-40	4.3	0.02	-	-	1	19.6	0.219
WQS04B	3	DUP REP3	25-Aug-2019	L2336095-42	4.4	0.02	-	-	1	19.6	0.226
WQS05	1	WQS-05 REP1	25-Aug-2019	L2336095-24	8.4	0.04	-	-	1	19.6	0.430
WQS05	2	WQS-05 REP2	25-Aug-2019	L2336095-37	3.7	0.02	-	-	1	19.6	0.188
WQS05	3	WQS-05 REP3	25-Aug-2019	L2336095-38	10.0	0.05	-	-	1	19.6	0.510
WQS08	1	WQS-08 REP1	25-Aug-2019	L2336095-23	9.4	0.04	-	-	1	19.6	0.479
WQS08	2	WQS-08 REP2	25-Aug-2019	L2336095-35	8.5	0.04	-	-	1	19.6	0.431
WQS08	3	WQS-08 REP3	25-Aug-2019	L2336095-36	7.4	0.04	-	-	1	19.6	0.380
WQS09	1	WQS-09 REP1	25-Aug-2019	L2336095-22	13.1	0.07	-	-	1	19.6	0.668
WQS09	2	WQS-09 REP2	25-Aug-2019	L2336095-33	8.4	0.05	-	-	1	19.6	0.430
WQS09	3	WQS-09 REP3	25-Aug-2019	L2336095-34	5.5	0.04	-	-	1	19.6	0.279
WQS11-US	1	WQS-11-US REP1	24-Aug-2019	L2336095-21	20.8	0.06	-	-	1	19.6	1.061
WQS11-US	2	WQS-11-US REP2	24-Aug-2019	L2336095-31	52.1	0.2	-	-	1	19.6	2.658
WQS11-US	3	WQS-11-US-REP3	24-Aug-2019	L2336095-32	18.1	0.3	-	-	1	19.6	0.923
WQS12	1	WQS-12 REP1	24-Aug-2019	L2336095-20	75.6	0.4	-	-	1	19.6	3.857
WQS12	2	WQS-12 REP2	24-Aug-2019	L2336095-29	58.0	0.4	-	-	1	19.6	2.959
WQS12	3	WQS-12 REP3	24-Aug-2019	L2336095-30	45.4	0.2	-	-	1	19.6	2.316

Appendix 10-B *Stream Periphyton, Tenas Project, 2017 to 2019*

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS01	1	pp17-089-001	20-Sep-2017	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	17.52	15	1	6	1.0	105.1	105.1	ok
WQS01	1	pp17-089-001	20-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	17.52	15	1	5	1.0	87.6	87.6	ok
WQS01	1	pp17-089-001	20-Sep-2017	<i>Plagioselmis nanoplantica</i>	Cryptophyta	Cryptophyceae	Pyrenomonadales	Geminigeraceae	<i>Plagioselmis</i>	17.52	15	1	1	1.0	17.5	17.5	ok
WQS01	1	pp17-089-001	20-Sep-2017	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	17.52	15	1	9	5.9	157.7	926.5	ok
WQS01	1	pp17-089-001	20-Sep-2017	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	17.52	15	1	314	8.0	5,502.2	44,017.6	ok
WQS01	1	pp17-089-001	20-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	17.52	15	1	6	16.0	105.1	1,682.2	ok
WQS01	1	pp17-089-001	20-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	17.52	15	1	8	9.3	140.2	1,308.4	ok
WQS01	1	pp17-089-001	20-Sep-2017	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				17.52	15	1	1	10.0	17.5	175.2	Exclude
WQS01	2	pp17-089-002	20-Sep-2017	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	17.52	15	1	3	1.0	52.6	52.6	ok
WQS01	2	pp17-089-002	20-Sep-2017	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	17.52	15	1	1	1.0	17.5	17.5	ok
WQS01	2	pp17-089-002	20-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	17.52	15	1	3	1.0	52.6	52.6	ok
WQS01	2	pp17-089-002	20-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				17.52	15	1	1	1.0	17.5	17.5	Exclude
WQS01	2	pp17-089-002	20-Sep-2017	<i>Aphanothece</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Aphanothecaceae	<i>Aphanothece</i>	17.52	15	1	1	5.0	17.5	87.6	ok
WQS01	2	pp17-089-002	20-Sep-2017	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	17.52	15	1	5	2.0	87.6	175.2	ok
WQS01	2	pp17-089-002	20-Sep-2017	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	17.52	15	1	259	8.0	4,538.4	36,307.6	ok
WQS01	2	pp17-089-002	20-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	17.52	15	1	37	4.0	648.3	2,593.4	ok
WQS01	2	pp17-089-002	20-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	17.52	15	1	17	4.0	297.9	1,191.6	ok
WQS01	3	pp17-089-003	20-Sep-2017	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	13.14	20	1	11	1.0	144.6	144.6	ok
WQS01	3	pp17-089-003	20-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	13.14	20	1	1	1.0	13.1	13.1	ok
WQS01	3	pp17-089-003	20-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	13.14	20	1	14	1.0	184.0	184.0	ok
WQS01	3	pp17-089-003	20-Sep-2017	<i>Aphanothece</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Aphanothecaceae	<i>Aphanothece</i>	13.14	20	1	1	14.0	13.1	184.0	ok
WQS01	3	pp17-089-003	20-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	13.14	20	1	1	4.0	13.1	52.6	ok
WQS01	3	pp17-089-003	20-Sep-2017	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	13.14	20	1	262	10.0	3,443.3	34,432.6	ok
WQS01	3	pp17-089-003	20-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	13.14	20	1	28	8.0	368.0	2,943.9	ok
WQS01	3	pp17-089-003	20-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	13.14	20	1	11	6.0	144.6	867.4	ok
WQS01	3	pp17-089-003	20-Sep-2017	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				13.14	20	1	2	6.0	26.3	157.7	Exclude
WQS02	1	pp17-089-004	19-Sep-2017	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	5.26	25	2	40	1.0	210.3	210.3	ok
WQS02	1	pp17-089-004	19-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	5.26	25	2	2	1.0	10.5	10.5	ok
WQS02	1	pp17-089-004	19-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	5.26	25	2	6	1.0	31.5	31.5	ok
WQS02	1	pp17-089-004	19-Sep-2017	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	5.26	25	2	1	1.0	5.3	5.3	ok
WQS02	1	pp17-089-004	19-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				5.26	25	2	1	1.0	5.3	5.3	Exclude
WQS02	1	pp17-089-004	19-Sep-2017	<i>Hyella</i> sp.	Cyanophyta	Cyanophyceae	Pleurocapsales	Hyellaceae	<i>Hyella</i>	5.26	25	2	2	4.0	10.5	42.1	ok
WQS02	1	pp17-089-004	19-Sep-2017	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	5.26	25	2	219	7.0	1,151.3	8,058.8	ok
WQS02	1	pp17-089-004	19-Sep-2017	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	5.26	25	2	5	6.0	26.3	157.7	ok
WQS02	1	pp17-089-004	19-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	5.26	25	2	15	8.0	78.9	630.8	ok
WQS02	1	pp17-089-004	19-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Pseudanabaena</i>	5.26	25	2	7	7.0	36.8	257.6	ok
WQS02	1	pp17-089-004	19-Sep-2017	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				5.26	25	2	6	16.0	31.5	504.7	Exclude
WQS02	2	pp17-089-005	19-Sep-2017	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Leptolyngbyaceae	<i>Nitzschia</i>	5.26	25	2	2	1.0	10.5	10.5	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Leptolyngbyaceae	<i>Achnanthydium</i>	5.26	25	2	12	1.0	63.1	63.1	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Leptolyngbyaceae	<i>Gomphonema</i>	5.26	25	2	5	1.0	26.3	26.3	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Leptolyngbyaceae	<i>Fragilaria</i>	5.26	25	2	12	1.0	63.1	63.1	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Leptolyngbyaceae	<i>Fragilaria</i>	5.26	25	2	2	1.0	10.5	10.5	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Leptolyngbyaceae	<i>Hannaea</i>	5.26	25	2	5	1.0	26.3	26.3	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Leptolyngbyaceae	<i>Navicula</i>	5.26	25	2	1	1.0	5.3	5.3	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Aphanothece</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Leptolyngbyaceae	<i>Aphanothece</i>	5.26	25	2	1	20.0	5.3	105.1	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Leptolyngbyaceae	<i>Phormidium</i>	5.26	25	2	59	9.3	310.2	2,868.9	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Hyella</i> sp.	Cyanophyta	Cyanophyceae	Pleurocapsales	Leptolyngbyaceae	<i>Hyella</i>	5.26	25	2	1	4.0	5.3	21.0	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Heteroleibeinia</i>	5.26	25	2	155	8.0	814.8	6,518.5	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	5.26	25	2	3	10.0	15.8	157.7	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	5.26	25	2	15	10.0	78.9	788.5	ok
WQS02	2	pp17-089-005	19-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Pseudanabaena</i>	5.26	25	2	13	5.0	68.3	341.7	ok
WQS02	2	pp17-089-005	19-Sep-2017	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				5.26	25	2	4	13.0	21.0	273.4	Exclude
WQS02	3	pp17-089-006	19-Sep-2017	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Leptolyngbyaceae	<i>Achnanthydium</i>	3.98	33	2	2	1.0	8.0	8.0	ok
WQS02	3	pp17-089-006	19-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Leptolyngbyaceae	<i>Fragilaria</i>	3.98	33	2	2	1.0	8.0	8.0	ok
WQS02	3	pp17-089-006	19-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Leptolyngbyaceae	<i>Diatoma</i>	3.98	33	2	1	1.0	4.0	4.0	ok
WQS02	3	pp17-089-006	19-Sep-2017	<i>Hyella</i> sp.	Cyanophyta	Cyanophyceae	Pleurocapsales	Leptolyngbyaceae	<i>Hyella</i>	3.98	33	2	1	4.0	4.0	15.9	ok
WQS02	3	pp17-089-006	19-Sep-2017	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Heteroleibeinia</i>	3.98	33	2	210	8.0	836.3	6,690.6	ok
WQS02	3	pp17-089-006	19-Sep-2017	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	3.98	33	2	4	7.0	15.9	111.5	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS02	3	pp17-089-006	19-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	3.98	33	2	7	8.0	27.9	223.0	ok
WQS02	3	pp17-089-006	19-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Pseudanabaena</i>	3.98	33	2	33	5.0	131.4	657.1	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Leptolyngbyaceae	<i>Nitzschia</i>	2.63	100	1	1	1.0	2.6	2.6	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Leptolyngbyaceae	<i>Achnanthidium</i>	2.63	100	1	38	1.0	99.9	99.9	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Leptolyngbyaceae	<i>Encyonema</i>	2.63	100	1	4	1.0	10.5	10.5	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Leptolyngbyaceae	<i>Gomphonema</i>	2.63	100	1	19	1.0	49.9	49.9	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Leptolyngbyaceae	<i>Eunotia</i>	2.63	100	1	1	1.0	2.6	2.6	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Leptolyngbyaceae	<i>Fragilaria</i>	2.63	100	1	16	1.0	42.1	42.1	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Navicula</i> cf. <i>cincta</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Leptolyngbyaceae	<i>Navicula</i>	2.63	100	1	2	1.0	5.3	5.3	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Leptolyngbyaceae	<i>Diatoma</i>	2.63	100	1	4	1.0	10.5	10.5	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Aphanothece</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Leptolyngbyaceae	<i>Aphanothece</i>	2.63	100	1	8	7.6	21.0	158.9	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Leptolyngbyaceae	<i>Phormidium</i>	2.63	100	1	6	8.0	15.8	126.2	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Heteroleibeinia</i>	2.63	100	1	42	8.0	110.4	883.2	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	2.63	100	1	20	8.0	52.6	420.6	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	2.63	100	1	30	8.0	78.9	630.8	ok
WQS05	1	pp17-089-007	18-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Pseudanabaena</i>	2.63	100	1	1	16.0	2.6	42.1	ok
WQS05	1	pp17-089-007	18-Sep-2017	Cyanophyte (colony)	Cyanophyta	Cyanophyceae		Leptolyngbyaceae		2.63	100	1	4	6.0	10.5	63.1	Exclude
WQS05	2	pp17-089-008	18-Sep-2017	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Leptolyngbyaceae	<i>Achnanthidium</i>	2.63	100	1	59	1.0	155.1	155.1	ok
WQS05	2	pp17-089-008	18-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Leptolyngbyaceae	<i>Gomphonema</i>	2.63	100	1	4	1.0	10.5	10.5	ok
WQS05	2	pp17-089-008	18-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Leptolyngbyaceae	<i>Eunotia</i>	2.63	100	1	2	1.0	5.3	5.3	ok
WQS05	2	pp17-089-008	18-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Leptolyngbyaceae	<i>Fragilaria</i>	2.63	100	1	6	1.0	15.8	15.8	ok
WQS05	2	pp17-089-008	18-Sep-2017	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Leptolyngbyaceae	<i>Hannaea</i>	2.63	100	1	1	1.0	2.6	2.6	ok
WQS05	2	pp17-089-008	18-Sep-2017	<i>Achnantes</i> cf. <i>clevei</i>	Bacillariophyta	Bacillariophyceae	Mastogloiales	Leptolyngbyaceae	<i>Achnantes</i>	2.63	100	1	1	1.0	2.6	2.6	ok
WQS05	2	pp17-089-008	18-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae		Leptolyngbyaceae		2.63	100	1	2	1.0	5.3	5.3	Exclude
WQS05	2	pp17-089-008	18-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Leptolyngbyaceae	<i>Phormidium</i>	2.63	100	1	3	6.0	7.9	47.3	ok
WQS05	2	pp17-089-008	18-Sep-2017	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Heteroleibeinia</i>	2.63	100	1	97	6.0	255.0	1,529.8	ok
WQS05	2	pp17-089-008	18-Sep-2017	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	2.63	100	1	15	7.0	39.4	276.0	ok
WQS05	2	pp17-089-008	18-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	2.63	100	1	39	7.0	102.5	717.6	ok
WQS05	2	pp17-089-008	18-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	2.63	100	1	15	11.5	39.4	453.4	ok
WQS05	2	pp17-089-008	18-Sep-2017	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				2.63	100	1	1	4.0	2.6	10.5	Exclude
WQS05	3	pp17-089-009	18-Sep-2017	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	2.63	100	1	1	1.0	2.6	2.6	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	2.63	100	1	93	1.0	244.4	244.4	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	2.63	100	1	10	1.0	26.3	26.3	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	2.63	100	1	50	1.0	131.4	131.4	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	2.63	100	1	10	1.0	26.3	26.3	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	2.63	100	1	4	1.0	10.5	10.5	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	2.63	100	1	5	1.0	13.1	13.1	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Navicula</i> cf. <i>gregaria</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	2.63	100	1	1	1.0	2.6	2.6	ok
WQS05	3	pp17-089-009	18-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				2.63	100	1	2	1.0	5.3	5.3	Exclude
WQS05	3	pp17-089-009	18-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	2.63	100	1	2	6.0	5.3	31.5	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	2.63	100	1	19	12.0	49.9	599.3	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	2.63	100	1	12	11.0	31.5	347.0	ok
WQS05	3	pp17-089-009	18-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	2.63	100	1	6	4.0	15.8	63.1	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	18.77	70	0.2	2	1.0	37.5	37.5	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	18.77	70	0.2	92	1.0	1,727.3	1,727.3	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	18.77	70	0.2	1	1.0	18.8	18.8	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	18.77	70	0.2	23	1.0	431.8	431.8	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	18.77	70	0.2	4	1.0	75.1	75.1	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	18.77	70	0.2	30	1.0	563.2	563.2	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	18.77	70	0.2	129	1.0	2,421.9	2,421.9	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	18.77	70	0.2	7	1.0	131.4	131.4	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	18.77	70	0.2	15	1.0	281.6	281.6	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	18.77	70	0.2	4	1.0	75.1	75.1	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Tabellaria fenestrata</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	18.77	70	0.2	2	1.0	37.5	37.5	ok
WQS08	1	pp17-089-010	18-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				18.77	70	0.2	8	1.0	150.2	150.2	Exclude
WQS08	1	pp17-089-010	18-Sep-2017	<i>Cladophora</i> sp.	Chlorophyta	Ulvophyceae	Cladophorales	Cladophoraceae	<i>Cladophora</i>	18.77	70	0.2	5	1.0	93.9	93.9	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Ulothrix</i> sp.	Chlorophyta	Ulvophyceae	Ulotrichales	Ulotrichaceae	<i>Ulothrix</i>	18.77	70	0.2	7	1.0	131.4	131.4	ok
WQS08	1	pp17-089-010	18-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	18.77	70	0.2	4	8.5	75.1	638.3	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS08	1	pp17-089-010	18-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	18.77	70	0.2	5	6.0	93.9	563.2	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	18.77	70	0.2	88	1.0	1,652.2	1,652.2	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	18.77	70	0.2	1	1.0	18.8	18.8	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	18.77	70	0.2	27	1.0	506.9	506.9	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	18.77	70	0.2	11	1.0	206.5	206.5	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	18.77	70	0.2	23	1.0	431.8	431.8	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	18.77	70	0.2	65	1.0	1,220.3	1,220.3	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	18.77	70	0.2	3	1.0	56.3	56.3	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	18.77	70	0.2	1	1.0	18.8	18.8	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	18.77	70	0.2	13	1.0	244.1	244.1	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	18.77	70	0.2	4	1.0	75.1	75.1	ok
WQS08	2	pp17-089-011	18-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				18.77	70	0.2	7	1.0	131.4	131.4	Exclude
WQS08	2	pp17-089-011	18-Sep-2017	<i>Cladophora</i> sp.	Chlorophyta	Ulvophyceae	Cladophorales	Cladophoraceae	<i>Cladophora</i>	18.77	70	0.2	25	1.0	469.4	469.4	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	18.77	70	0.2	17	5.0	319.2	1,595.8	ok
WQS08	2	pp17-089-011	18-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	18.77	70	0.2	16	5.8	300.4	1,735.6	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	21.90	60	0.2	161	1.0	3,526.5	3,526.5	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	21.90	60	0.2	9	1.0	197.1	197.1	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	21.90	60	0.2	5	1.0	109.5	109.5	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	21.90	60	0.2	14	1.0	306.7	306.7	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	21.90	60	0.2	64	1.0	1,401.8	1,401.8	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	21.90	60	0.2	3	1.0	65.7	65.7	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	21.90	60	0.2	1	1.0	21.9	21.9	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	21.90	60	0.2	10	1.0	219.0	219.0	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	21.90	60	0.2	2	1.0	43.8	43.8	ok
WQS08	3	pp17-089-012	18-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				21.90	60	0.2	10	1.0	219.0	219.0	Exclude
WQS08	3	pp17-089-012	18-Sep-2017	<i>Cladophora</i> sp.	Chlorophyta	Ulvophyceae	Cladophorales	Cladophoraceae	<i>Cladophora</i>	21.90	60	0.2	24	1.0	525.7	525.7	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Ulothrix</i> sp.	Chlorophyta	Ulvophyceae	Ulotrichales	Ulotrichaceae	<i>Ulothrix</i>	21.90	60	0.2	13	1.0	284.7	284.7	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	21.90	60	0.2	7	8.0	153.3	1,226.6	ok
WQS08	3	pp17-089-012	18-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	21.90	60	0.2	4	6.0	87.6	525.7	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	328.56	8	0.1	185	1.0	60,782.7	60,782.7	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	328.56	8	0.1	4	1.0	1,314.2	1,314.2	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	328.56	8	0.1	2	1.0	657.1	657.1	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	328.56	8	0.1	2	1.0	657.1	657.1	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	328.56	8	0.1	71	1.0	23,327.4	23,327.4	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	328.56	8	0.1	2	1.0	657.1	657.1	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	328.56	8	0.1	9	1.0	2,957.0	2,957.0	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	328.56	8	0.1	4	1.0	1,314.2	1,314.2	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	328.56	8	0.1	4	1.0	1,314.2	1,314.2	ok
WQS09	1	pp17-089-013	19-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				328.56	8	0.1	9	1.0	2,957.0	2,957.0	Exclude
WQS09	1	pp17-089-013	19-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	328.56	8	0.1	1	4.0	328.6	1,314.2	ok
WQS09	1	pp17-089-013	19-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	328.56	8	0.1	3	8.0	985.7	7,885.3	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	328.56	8	0.1	102	1.0	33,512.6	33,512.6	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	328.56	8	0.1	1	1.0	328.6	328.6	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	328.56	8	0.1	3	1.0	985.7	985.7	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	328.56	8	0.1	9	1.0	2,957.0	2,957.0	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	328.56	8	0.1	6	1.0	1,971.3	1,971.3	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	328.56	8	0.1	169	1.0	55,525.8	55,525.8	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	328.56	8	0.1	2	1.0	657.1	657.1	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	328.56	8	0.1	6	1.0	1,971.3	1,971.3	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	328.56	8	0.1	2	1.0	657.1	657.1	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	328.56	8	0.1	8	1.0	2,628.4	2,628.4	ok
WQS09	2	pp17-089-014	19-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				328.56	8	0.1	8	1.0	2,628.4	2,628.4	Exclude
WQS09	2	pp17-089-014	19-Sep-2017	<i>Ulothrix</i> sp.	Chlorophyta	Ulvophyceae	Ulotrichales	Ulotrichaceae	<i>Ulothrix</i>	328.56	8	0.1	17	1.0	5,585.4	5,585.4	ok
WQS09	2	pp17-089-014	19-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	328.56	8	0.1	1	5.0	328.6	1,642.8	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	328.56	8	0.1	88	1.0	28,912.9	28,912.9	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	328.56	8	0.1	1	1.0	328.6	328.6	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	328.56	8	0.1	3	1.0	985.7	985.7	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	328.56	8	0.1	6	1.0	1,971.3	1,971.3	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	328.56	8	0.1	6	1.0	1,971.3	1,971.3	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	328.56	8	0.1	151	1.0	49,611.8	49,611.8	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	328.56	8	0.1	1	1.0	328.6	328.6	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	328.56	8	0.1	9	1.0	2,957.0	2,957.0	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	328.56	8	0.1	3	1.0	985.7	985.7	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	328.56	8	0.1	8	1.0	2,628.4	2,628.4	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Tabellaria fenestrata</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	328.56	8	0.1	1	1.0	328.6	328.6	ok
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				328.56	8	0.1	10	1.0	3,285.6	3,285.6	Exclude
WQS09-QA	2	pp17-089-014QA	19-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	328.56	8	0.1	1	10.0	328.6	3,285.6	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	202.19	13	0.1	148	1.0	29,923.8	29,923.8	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	202.19	13	0.1	1	1.0	202.2	202.2	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	202.19	13	0.1	4	1.0	808.8	808.8	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	202.19	13	0.1	7	1.0	1,415.3	1,415.3	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	202.19	13	0.1	14	1.0	2,830.6	2,830.6	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	202.19	13	0.1	122	1.0	24,666.9	24,666.9	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	202.19	13	0.1	4	1.0	808.8	808.8	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	202.19	13	0.1	3	1.0	606.6	606.6	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	202.19	13	0.1	3	1.0	606.6	606.6	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	202.19	13	0.1	2	1.0	404.4	404.4	ok
WQS09	3	pp17-089-015	19-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				202.19	13	0.1	9	1.0	1,819.7	1,819.7	Exclude
WQS09	3	pp17-089-015	19-Sep-2017	<i>Ulothrix</i> sp.	Chlorophyta	Ulvophyceae	Ulotrichales	Ulotrichaceae	<i>Ulothrix</i>	202.19	13	0.1	23	1.0	4,650.3	4,650.3	ok
WQS09	3	pp17-089-015	19-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	202.19	13	0.1	6	11.0	1,213.1	13,344.4	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	73.01	18	0.2	86	1.0	6,279.1	6,279.1	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	73.01	18	0.2	10	1.0	730.1	730.1	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	73.01	18	0.2	31	1.0	2,263.4	2,263.4	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Gomphonema truncatum</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	73.01	18	0.2	2	1.0	146.0	146.0	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	73.01	18	0.2	6	1.0	438.1	438.1	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Fragilaria crotonensis</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	73.01	18	0.2	6	1.0	438.1	438.1	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	73.01	18	0.2	81	1.0	5,914.0	5,914.0	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	73.01	18	0.2	13	1.0	949.2	949.2	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	73.01	18	0.2	16	1.0	1,168.2	1,168.2	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Brachysira</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Brachysiraceae	<i>Brachysira</i>	73.01	18	0.2	1	1.0	73.0	73.0	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	73.01	18	0.2	8	1.0	584.1	584.1	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	73.01	18	0.2	28	1.0	2,044.3	2,044.3	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Tabellaria flocculosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	73.01	18	0.2	4	1.0	292.0	292.0	ok
WQS12	1	pp17-089-016	20-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				73.01	18	0.2	6	1.0	438.1	438.1	Exclude
WQS12	1	pp17-089-016	20-Sep-2017	<i>Desmodesmus</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Scenedesmaceae	<i>Desmodesmus</i>	73.01	18	0.2	2	1.0	146.0	146.0	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	73.01	18	0.2	16	6.0	1,168.2	7,009.2	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	73.01	18	0.2	4	8.0	292.0	2,336.4	ok
WQS12	1	pp17-089-016	20-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	73.01	18	0.2	6	8.3	438.1	3,614.1	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	57.14	23	0.2	49	1.0	2,799.9	2,799.9	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	57.14	23	0.2	2	1.0	114.3	114.3	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	57.14	23	0.2	4	1.0	228.6	228.6	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	57.14	23	0.2	38	1.0	2,171.3	2,171.3	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	57.14	23	0.2	9	1.0	514.3	514.3	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Fragilaria crotonensis</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	57.14	23	0.2	4	1.0	228.6	228.6	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	57.14	23	0.2	96	1.0	5,485.4	5,485.4	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	57.14	23	0.2	9	1.0	514.3	514.3	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	57.14	23	0.2	5	1.0	285.7	285.7	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	57.14	23	0.2	2	1.0	114.3	114.3	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	57.14	23	0.2	39	1.0	2,228.5	2,228.5	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Tabellaria flocculosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	57.14	23	0.2	9	1.0	514.3	514.3	ok
WQS12	2	pp17-089-017	20-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae				57.14	23	0.2	12	1.0	685.7	685.7	Exclude
WQS12	2	pp17-089-017	20-Sep-2017	<i>Closterium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Closteriaceae	<i>Closterium</i>	57.14	23	0.2	1	1.0	57.1	57.1	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Cosmarium</i> sp.1	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	57.14	23	0.2	2	1.0	114.3	114.3	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Cosmarium</i> sp.2	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	57.14	23	0.2	1	1.0	57.1	57.1	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Actinotaenium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Actinotaenium</i>	57.14	23	0.2	1	1.0	57.1	57.1	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Ulothrix</i> sp.	Chlorophyta	Ulvophyceae	Ulotrichales	Desmidiaceae	<i>Ulothrix</i>	57.14	23	0.2	9	1.0	514.3	514.3	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS12	2	pp17-089-017	20-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Desmidiaceae	<i>Phormidium</i>	57.14	23	0.2	4	16.0	228.6	3,657.0	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Desmidiaceae	<i>Leptolyngbya</i>	57.14	23	0.2	1	6.0	57.1	342.8	ok
WQS12	2	pp17-089-017	20-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Desmidiaceae	<i>Pseudanabaena</i>	57.14	23	0.2	5	4.0	285.7	1,142.8	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Desmidiaceae	<i>Nitzschia</i>	57.14	23	0.2	2	1.0	114.3	114.3	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Desmidiaceae	<i>Achnanthidium</i>	57.14	23	0.2	44	1.0	2,514.2	2,514.2	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Desmidiaceae	<i>Cymbella</i>	57.14	23	0.2	2	1.0	114.3	114.3	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Desmidiaceae	<i>Encyonema</i>	57.14	23	0.2	8	1.0	457.1	457.1	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Desmidiaceae	<i>Gomphonema</i>	57.14	23	0.2	31	1.0	1,771.3	1,771.3	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Desmidiaceae	<i>Eunotia</i>	57.14	23	0.2	12	1.0	685.7	685.7	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Fragilaria crotonensis</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Desmidiaceae	<i>Fragilaria</i>	57.14	23	0.2	19	1.0	1,085.7	1,085.7	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Desmidiaceae	<i>Fragilaria</i>	57.14	23	0.2	85	1.0	4,856.9	4,856.9	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Desmidiaceae	<i>Fragilaria</i>	57.14	23	0.2	5	1.0	285.7	285.7	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Desmidiaceae	<i>Synedra</i>	57.14	23	0.2	16	1.0	914.2	914.2	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Brachysira</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Desmidiaceae	<i>Brachysira</i>	57.14	23	0.2	1	1.0	57.1	57.1	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Navicula</i> cf. <i>ignota</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Desmidiaceae	<i>Navicula</i>	57.14	23	0.2	1	1.0	57.1	57.1	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Desmidiaceae	<i>Navicula</i>	57.14	23	0.2	4	1.0	228.6	228.6	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Desmidiaceae	<i>Diatoma</i>	57.14	23	0.2	56	1.0	3,199.8	3,199.8	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Tabellaria fenestrata</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Desmidiaceae	<i>Tabellaria</i>	57.14	23	0.2	11	1.0	628.5	628.5	ok
WQS12	3	pp17-089-018	20-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae		Desmidiaceae		57.14	23	0.2	12	1.0	685.7	685.7	Exclude
WQS12	3	pp17-089-018	20-Sep-2017	<i>Cosmarium</i> sp.1	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiales	Desmidiaceae	<i>Cosmarium</i>	57.14	23	0.2	5	1.0	285.7	285.7	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Desmidiaceae	<i>Phormidium</i>	57.14	23	0.2	11	10.0	628.5	6,285.4	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Desmidiaceae	<i>Leptolyngbya</i>	57.14	23	0.2	1	6.0	57.1	342.8	ok
WQS12	3	pp17-089-018	20-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Desmidiaceae	<i>Pseudanabaena</i>	57.14	23	0.2	5	5.0	285.7	1,428.5	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Desmidiaceae	<i>Nitzschia</i>	57.14	23	0.2	2	1.0	114.3	114.3	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Desmidiaceae	<i>Achnanthidium</i>	57.14	23	0.2	49	1.0	2,799.9	2,799.9	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Desmidiaceae	<i>Cymbella</i>	57.14	23	0.2	5	1.0	285.7	285.7	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Desmidiaceae	<i>Encyonema</i>	57.14	23	0.2	8	1.0	457.1	457.1	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Desmidiaceae	<i>Gomphonema</i>	57.14	23	0.2	33	1.0	1,885.6	1,885.6	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Desmidiaceae	<i>Eunotia</i>	57.14	23	0.2	10	1.0	571.4	571.4	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Fragilaria crotonensis</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Desmidiaceae	<i>Fragilaria</i>	57.14	23	0.2	10	1.0	571.4	571.4	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Desmidiaceae	<i>Fragilaria</i>	57.14	23	0.2	83	1.0	4,742.6	4,742.6	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Fragilaria ulna</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Desmidiaceae	<i>Fragilaria</i>	57.14	23	0.2	3	1.0	171.4	171.4	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Desmidiaceae	<i>Synedra</i>	57.14	23	0.2	14	1.0	800.0	800.0	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Desmidiaceae	<i>Navicula</i>	57.14	23	0.2	5	1.0	285.7	285.7	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Desmidiaceae	<i>Diatoma</i>	57.14	23	0.2	55	1.0	3,142.7	3,142.7	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Tabellaria flocculosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Desmidiaceae	<i>Tabellaria</i>	57.14	23	0.2	1	1.0	57.1	57.1	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	Pennate Diatom	Bacillariophyta	Bacillariophyceae		Desmidiaceae		57.14	23	0.2	9	1.0	514.3	514.3	Exclude
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Cosmarium</i> sp.1	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiales	Desmidiaceae	<i>Cosmarium</i>	57.14	23	0.2	3	1.0	171.4	171.4	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Cosmarium</i> sp.2	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiales	Desmidiaceae	<i>Cosmarium</i>	57.14	23	0.2	1	1.0	57.1	57.1	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	57.14	23	0.2	1	10.0	57.1	571.4	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	57.14	23	0.2	5	14.0	285.7	3,999.8	ok
WQS12-QA	3	pp17-089-018QA	20-Sep-2017	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	57.14	23	0.2	2	8.0	114.3	914.2	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	14.56	25	1	157	1.0	2,286.1	2,286.1	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	14.56	25	1	5	1.0	72.8	72.8	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Brachysira</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Brachysiraceae	<i>Brachysira</i>	14.56	25	1	1	1.0	14.6	14.6	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	14.56	25	1	5	20.7	72.8	1,504.7	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	14.56	25	1	9	2.6	131.1	337.0	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiales	Desmidiaceae	<i>Cosmarium</i>	14.56	25	1	2	1.0	29.1	29.1	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	Cyanophyte (filament)	Cyanophyta	Cyanophyceae				14.56	25	1	4	7.5	58.2	436.8	Exclude
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Cymbella</i> cf. <i>affinis</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	14.56	25	1	10	1.0	145.6	145.6	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	14.56	25	1	10	1.0	145.6	145.6	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Diploneis</i> cf. <i>oculata</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Diploneidaceae	<i>Diploneis</i>	14.56	25	1	1	1.0	14.6	14.6	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Epipyxis</i> sp.	Ochrophyta	Chrysophyceae	Chromulinales	Dinobryaceae	<i>Epipyxis</i>	14.56	25	1	6	1.0	87.4	87.4	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Fragilaria crotonensis</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	14.56	25	1	6	1.0	87.4	87.4	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	14.56	25	1	52	1.0	757.2	757.2	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Heteroleibleinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibleinia</i>	14.56	25	1	3	12.5	43.7	546.0	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	14.56	25	1	7	10.2	101.9	1,039.7	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Microspora</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Microsporaceae	<i>Microspora</i>	14.56	25	1	6	1.0	87.4	87.4	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Mougeotia</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Zygnematales	Zygnemataceae	<i>Mougeotia</i>	14.56	25	1	12	1.0	174.7	174.7	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	14.56	25	1	2	1.0	29.1	29.1	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Oocystis</i> sp.	Chlorophyta	Trebouxiophyceae	Chlorellales	Oocystaceae	<i>Oocystis</i>	14.56	25	1	3	1.0	43.7	43.7	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	Pennate Diatom	Bacillariophyta	Bacillariophyceae				14.56	25	1	9	1.0	131.1	131.1	Exclude
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	14.56	25	1	11	5.4	160.2	860.9	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	Rhodophyte (filament)	Rhodophyta					14.56	25	1	9	1.0	131.1	131.1	Exclude
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	14.56	25	1	5	1.0	72.8	72.8	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Synechococcus</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Synechococcaceae	<i>Synechococcus</i>	14.56	25	1	21	1.0	305.8	305.8	ok
WQS11-US	1	pp18-157-001	20-Sep-2018	<i>Tabellaria flocculosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	14.56	25	1	4	1.0	58.2	58.2	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	79.14	23	0.2	67	1.0	5,302.2	5,302.2	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiophysales	Catenulaceae	<i>Amphora</i>	79.14	23	0.2	3	1.0	237.4	237.4	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Brachysira</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Brachysiraceae	<i>Brachysira</i>	79.14	23	0.2	1	1.0	79.1	79.1	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Calothrix</i> sp.	Cyanophyta	Cyanophyceae	Nostocales	Rivulariaceae	<i>Calothrix</i>	79.14	23	0.2	1	10.0	79.1	791.4	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	79.14	23	0.2	43	8.3	3,402.9	28,073.9	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	Chlorophyte (filament)	Chlorophyta					79.14	23	0.2	8	1.0	633.1	633.1	Exclude
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	79.14	23	0.2	20	2.3	1,582.7	3,617.7	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	79.14	23	0.2	2	1.0	158.3	158.3	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				79.14	23	0.2	6	6.5	474.8	3,086.3	Exclude
WQS11-US	2	pp18-157-002	20-Sep-2018	Cyanophyte (filament)	Cyanophyta	Cyanophyceae				79.14	23	0.2	2	5.5	158.3	870.5	Exclude
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Cymbella</i> cf. affinis	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	79.14	23	0.2	6	1.0	474.8	474.8	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	79.14	23	0.2	3	1.0	237.4	237.4	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Encyonema</i> cf. neogracile	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	79.14	23	0.2	2	1.0	158.3	158.3	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	79.14	23	0.2	4	1.0	316.5	316.5	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	79.14	23	0.2	22	5.3	1,741.0	9,227.4	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	79.14	23	0.2	16	6.8	1,266.2	8,582.0	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	Non-flagellated algal cell (< 10µm in length)						79.14	23	0.2	11	1.0	870.5	870.5	Exclude
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	79.14	23	0.2	18	7.9	1,424.5	11,266.3	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	Rhodophyte (filament)	Rhodophyta					79.14	23	0.2	14	1.0	1,107.9	1,107.9	Exclude
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	79.14	23	0.2	15	1.0	1,187.1	1,187.1	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Stigeoclonium</i> sp.	Chlorophyta	Chlorophyceae	Chaetophorales	Chaetophoraceae	<i>Stigeoclonium</i>	79.14	23	0.2	14	1.0	1,107.9	1,107.9	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Synechococcus</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Synechococcaceae	<i>Synechococcus</i>	79.14	23	0.2	25	1.0	1,978.4	1,978.4	ok
WQS11-US	2	pp18-157-002	20-Sep-2018	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	79.14	23	0.2	6	1.0	474.8	474.8	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	107.07	17	0.2	141	1.0	15,096.6	15,096.6	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	107.07	17	0.2	6	10.4	642.4	6,681.0	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	Chlorophyte (filament)	Chlorophyta					107.07	17	0.2	15	1.0	1,606.0	1,606.0	Exclude
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	107.07	17	0.2	21	1.8	2,248.4	3,978.0	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				107.07	17	0.2	13	5.4	1,391.9	7,516.2	Exclude
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Cymbella</i> cf. affinis	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	107.07	17	0.2	2	1.0	214.1	214.1	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	107.07	17	0.2	7	1.0	749.5	749.5	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Diploneis</i> cf. oculata	Bacillariophyta	Bacillariophyceae	Naviculales	Diploneidaceae	<i>Diploneis</i>	107.07	17	0.2	2	1.0	214.1	214.1	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Encyonema</i> cf. neogracile	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	107.07	17	0.2	4	1.0	428.3	428.3	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Fragilaria crotonensis</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	107.07	17	0.2	4	1.0	428.3	428.3	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	107.07	17	0.2	8	1.0	856.5	856.5	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	107.07	17	0.2	35	6.5	3,747.4	24,358.0	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	107.07	17	0.2	10	2.8	1,070.7	2,944.4	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Mougeotia</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Zygnematales	Zygnemataceae	<i>Mougeotia</i>	107.07	17	0.2	6	1.0	642.4	642.4	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	107.07	17	0.2	1	1.0	107.1	107.1	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	Non-flagellated algal cell (< 10µm in length)						107.07	17	0.2	9	1.0	963.6	963.6	Exclude
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	107.07	17	0.2	7	6.3	749.5	4,684.2	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	107.07	17	0.2	2	1.0	214.1	214.1	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Synechococcus</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Synechococcaceae	<i>Synechococcus</i>	107.07	17	0.2	12	1.0	1,284.8	1,284.8	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	107.07	17	0.2	11	1.0	1,177.7	1,177.7	ok
WQS11-US	3	pp18-157-003	20-Sep-2018	<i>Tabellaria fenestrata</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	107.07	17	0.2	1	1.0	107.1	107.1	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	107.07	17	0.2	122	1.0	13,062.3	13,062.3	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	107.07	17	0.2	4	1.0	428.3	428.3	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	107.07	17	0.2	6	9.8	642.4	6,295.6	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	Chlorophyte (filament)	Chlorophyta					107.07	17	0.2	8	1.0	856.5	856.5	Exclude
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	107.07	17	0.2	10	1.7	1,070.7	1,835.4	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	107.07	17	0.2	2	1.0	214.1	214.1	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	Cyanophyte (colony)	Cyanophyta					107.07	17	0.2	5	7.0	535.3	3,747.4	Exclude
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	Cyanophyte (filament)	Cyanophyta	Cyanophyceae				107.07	17	0.2	6	8.7	642.4	5,567.5	Exclude
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Cymbella</i> cf. affinis	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	107.07	17	0.2	4	1.0	428.3	428.3	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	107.07	17	0.2	5	1.0	535.3	535.3	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Fragilaria</i> crotonensis	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	107.07	17	0.2	7	1.0	749.5	749.5	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	107.07	17	0.2	10	1.0	1,070.7	1,070.7	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	107.07	17	0.2	34	5.9	3,640.3	21,386.8	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	107.07	17	0.2	2	11.0	214.1	2,355.5	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	Non-flagellated algal cell (< 10µm in length)						107.07	17	0.2	8	1.0	856.5	856.5	Exclude
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	Pennate Diatom	Bacillariophyta	Bacillariophyceae				107.07	17	0.2	5	1.0	535.3	535.3	Exclude
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	107.07	17	0.2	7	6.0	749.5	4,496.9	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	Rhodophyte (filament)	Rhodophyta					107.07	17	0.2	16	1.0	1,713.1	1,713.1	Exclude
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	107.07	17	0.2	8	1.0	856.5	856.5	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Synechococcus</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Synechococcaceae	<i>Synechococcus</i>	107.07	17	0.2	26	1.0	2,783.8	2,783.8	ok
WQS11-US-QA	3	pp18-157-003-QA	20-Sep-2018	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	107.07	17	0.2	12	1.0	1,284.8	1,284.8	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.9	50	2	20	1.0	17.1	17.1	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	0.9	50	2	70	1.0	59.9	59.9	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	0.9	50	2	8	1.0	6.8	6.8	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	0.9	50	2	27	1.0	23.1	23.1	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.9	50	2	105	1.0	89.9	89.9	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.9	50	2	10	1.0	8.6	8.6	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	0.9	50	2	2	1.0	1.7	1.7	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	0.9	50	2	6	1.0	5.1	5.1	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.9	50	2	4	1.0	3.4	3.4	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.9	50	2	17	1.0	14.6	14.6	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiophysales	Catenulaceae	<i>Amphora</i>	0.9	50	2	10	1.0	8.6	8.6	ok
WQS01	1	pp19-127-049	27-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.9	50	2	10	1.0	8.6	8.6	Exclude
WQS01	1	pp19-127-049	27-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.9	50	2	1	1.0	0.9	0.9	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	0.9	50	2	4	1.0	3.4	3.4	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.9	50	2	7	12.6	6.0	75.5	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.9	50	2	6	10.2	5.1	52.4	ok
WQS01	1	pp19-127-049	27-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	0.9	50	2	2	2.0	1.7	3.4	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	3.1	93	0.3	69	1.0	211.8	211.8	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	3.1	93	0.3	35	1.0	107.4	107.4	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	3.1	93	0.3	3	1.0	9.2	9.2	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	3.1	93	0.3	29	1.0	89.0	89.0	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	3.1	93	0.3	93	1.0	285.4	285.4	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	3.1	93	0.3	14	1.0	43.0	43.0	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Odontidium</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Odontidium</i>	3.1	93	0.3	2	1.0	6.1	6.1	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Navicula</i> cf. <i>minima</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	3.1	93	0.3	4	1.0	12.3	12.3	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	3.1	93	0.3	2	1.0	6.1	6.1	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Pinnularia</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Pinnulariaceae	<i>Pinnularia</i>	3.1	93	0.3	6	1.0	18.4	18.4	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	3.1	93	0.3	2	1.0	6.1	6.1	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiophysales	Catenulaceae	<i>Amphora</i>	3.1	93	0.3	5	1.0	15.3	15.3	ok
WQS01	2	pp19-127-050	27-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				3.1	93	0.3	15	1.0	46.0	46.0	Exclude
WQS01	2	pp19-127-050	27-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	3.1	93	0.3	2	10.0	6.1	61.4	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	3.1	93	0.3	22	7.7	67.5	520.8	ok
WQS01	2	pp19-127-050	27-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	3.1	93	0.3	2	18.0	6.1	110.5	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	1.1	40	2	21	1.0	22.5	22.5	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	1.1	40	2	88	1.0	94.2	94.2	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	1.1	40	2	1	1.0	1.1	1.1	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	1.1	40	2	19	1.0	20.3	20.3	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	1.1	40	2	5	1.0	5.4	5.4	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	1.1	40	2	107	1.0	114.5	114.5	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS01	3	pp19-127-051	27-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	1.1	40	2	7	1.0	7.5	7.5	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	1.1	40	2	2	1.0	2.1	2.1	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	1.1	40	2	3	1.0	3.2	3.2	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Asterionella formosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Asterionella</i>	1.1	40	2	1	1.0	1.1	1.1	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	1.1	40	2	11	1.0	11.8	11.8	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiosphysales	Catenulaceae	<i>Amphora</i>	1.1	40	2	6	1.0	6.4	6.4	ok
WQS01	3	pp19-127-051	27-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				1.1	40	2	5	1.0	5.4	5.4	Exclude
WQS01	3	pp19-127-051	27-Aug-2019	<i>Oocystis</i> sp.	Chlorophyta	Trebouxiophyceae	Chlorellales	Oocystaceae	<i>Oocystis</i>	1.1	40	2	3	1.0	3.2	3.2	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	1.1	40	2	2	10.0	2.1	21.4	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	1.1	40	2	2	6.5	2.1	13.9	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	1.1	40	2	4	1.0	4.3	4.3	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	1.1	40	2	2	25.5	2.1	54.6	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	1.1	40	2	19	6.7	20.3	135.6	ok
WQS01	3	pp19-127-051	27-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	1.1	40	2	2	4.5	2.1	9.6	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	4.1	30	0.7	31	1.0	126.4	126.4	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	4.1	30	0.7	71	1.0	289.5	289.5	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	4.1	30	0.7	7	1.0	28.5	28.5	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	4.1	30	0.7	9	1.0	36.7	36.7	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	4.1	30	0.7	1	1.0	4.1	4.1	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	4.1	30	0.7	1	1.0	4.1	4.1	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	4.1	30	0.7	29	1.0	118.2	118.2	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	4.1	30	0.7	6	1.0	24.5	24.5	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	4.1	30	0.7	1	1.0	4.1	4.1	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	4.1	30	0.7	2	1.0	8.2	8.2	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	4.1	30	0.7	5	1.0	20.4	20.4	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.1	30	0.7	5	1.0	20.4	20.4	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	4.1	30	0.7	7	1.0	28.5	28.5	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiosphysales	Catenulaceae	<i>Amphora</i>	4.1	30	0.7	7	1.0	28.5	28.5	ok
WQS02	1	pp19-127-046	27-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				4.1	30	0.7	7	1.0	28.5	28.5	Exclude
WQS02	1	pp19-127-046	27-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	4.1	30	0.7	1	6.0	4.1	24.5	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	4.1	30	0.7	9	1.0	36.7	36.7	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	4.1	30	0.7	3	9.3	12.2	114.2	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	4.1	30	0.7	7	7.0	28.5	199.8	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	4.1	30	0.7	85	5.2	346.6	1,809.9	ok
WQS02	1	pp19-127-046	27-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	4.1	30	0.7	9	3.3	36.7	122.3	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.8	37	3	20	1.0	15.4	15.4	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.8	37	3	42	1.0	32.4	32.4	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.8	37	3	4	1.0	3.1	3.1	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	0.8	37	3	16	1.0	12.3	12.3	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	0.8	37	3	2	1.0	1.5	1.5	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.8	37	3	75	1.0	57.9	57.9	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Encyonopsis</i> cf. <i>microcephala</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	0.8	37	3	1	1.0	0.8	0.8	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.8	37	3	8	1.0	6.2	6.2	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	0.8	37	3	1	1.0	0.8	0.8	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.8	37	3	3	1.0	2.3	2.3	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	0.8	37	3	1	1.0	0.8	0.8	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Melosira</i> sp.	Bacillariophyta	Bacillariophyceae	Melosirales	Melosiraceae	<i>Melosira</i>	0.8	37	3	2	1.0	1.5	1.5	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	0.8	37	3	4	1.0	3.1	3.1	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Navicula</i> cf. <i>minima</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.8	37	3	3	1.0	2.3	2.3	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.8	37	3	7	1.0	5.4	5.4	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.8	37	3	10	1.0	7.7	7.7	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiosphysales	Catenulaceae	<i>Amphora</i>	0.8	37	3	9	1.0	6.9	6.9	ok
WQS02	2	pp19-127-047	27-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.8	37	3	8	1.0	6.2	6.2	Exclude
WQS02	2	pp19-127-047	27-Aug-2019	<i>Cladophora</i> sp.	Chlorophyta	Ulvophyceae	Cladophorales	Cladophoraceae	<i>Cladophora</i>	0.8	37	3	3	6.5	2.3	15.0	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Monoraphidium</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	0.8	37	3	2	1.0	1.5	1.5	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.8	37	3	4	11.3	3.1	35.0	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.8	37	3	6	4.4	4.6	20.4	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	0.8	37	3	5	1.0	3.9	3.9	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS02	2	pp19-127-047	27-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.8	37	3	4	13.5	3.1	41.7	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.8	37	3	8	11.2	6.2	68.9	ok
WQS02	2	pp19-127-047	27-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.8	37	3	55	5.9	42.4	251.9	ok
WQS02	2	pp19-127-047	27-Aug-2019	Cyanophyte (filament)	Cyanophyta	Cyanophyceae				0.8	37	3	1	7.0	0.8	5.4	Exclude
WQS02	2	pp19-127-047	27-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	0.8	37	3	3	5.7	2.3	13.1	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	1.0	45	2	57	1.0	54.2	54.2	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	1.0	45	2	45	1.0	42.8	42.8	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	1.0	45	2	2	1.0	1.9	1.9	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	1.0	45	2	25	1.0	23.8	23.8	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	1.0	45	2	2	1.0	1.9	1.9	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	1.0	45	2	23	1.0	21.9	21.9	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	1.0	45	2	31	1.0	29.5	29.5	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	1.0	45	2	2	1.0	1.9	1.9	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	1.0	45	2	3	1.0	2.9	2.9	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	1.0	45	2	3	1.0	2.9	2.9	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	1.0	45	2	2	1.0	1.9	1.9	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	1.0	45	2	26	1.0	24.7	24.7	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	1.0	45	2	15	1.0	14.3	14.3	ok
WQS02	3	pp19-127-048	27-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				1.0	45	2	6	1.0	5.7	5.7	Exclude
WQS02	3	pp19-127-048	27-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmiales	Desmidiaceae	<i>Cosmarium</i>	1.0	45	2	1	1.0	1.0	1.0	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Cladophora</i> sp.	Chlorophyta	Ulvophyceae	Cladophorales	Cladophoraceae	<i>Cladophora</i>	1.0	45	2	2	12.0	1.9	22.8	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Lyngbya</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Lyngbya</i>	1.0	45	2	2	6.0	1.9	11.4	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	1.0	45	2	8	10.0	7.6	76.1	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	1.0	45	2	2	26.0	1.9	49.5	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	1.0	45	2	2	1.0	1.9	1.9	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	1.0	45	2	5	21.0	4.8	99.9	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	1.0	45	2	35	6.9	33.3	230.5	ok
WQS02	3	pp19-127-048	27-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	1.0	45	2	22	6.0	20.9	125.6	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	1.2	37	2	5	1.0	5.8	5.8	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	1.2	37	2	7	1.0	8.1	8.1	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	1.2	37	2	4	1.0	4.6	4.6	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	1.2	37	2	4	1.0	4.6	4.6	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	1.2	37	2	6	1.0	6.9	6.9	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	1.2	37	2	90	1.0	104.1	104.1	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	1.2	37	2	5	1.0	5.8	5.8	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	1.2	37	2	5	1.0	5.8	5.8	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	1.2	37	2	4	1.0	4.6	4.6	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	1.2	37	2	6	1.0	6.9	6.9	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	1.2	37	2	60	1.0	69.4	69.4	ok
WQS04B	1	pp19-127-043	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				1.2	37	2	9	1.0	10.4	10.4	Exclude
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Calothrix</i> sp.	Cyanophyta	Cyanophyceae	Nostocales	Rivulariaceae	<i>Calothrix</i>	1.2	37	2	11	5.4	12.7	69.3	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	1.2	37	2	3	6.7	3.5	23.1	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	1.2	37	2	1	1.0	1.2	1.2	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	1.2	37	2	17	11.9	19.7	234.3	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	1.2	37	2	30	12.8	34.7	443.2	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	1.2	37	2	1	8.0	1.2	9.3	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	1.2	37	2	9	8.0	10.4	83.3	ok
WQS04B	1	pp19-127-043	25-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	1.2	37	2	29	7.4	33.6	246.7	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	3.2	27	1	6	1.0	19.0	19.0	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	3.2	27	1	7	1.0	22.2	22.2	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	3.2	27	1	5	1.0	15.9	15.9	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	3.2	27	1	2	1.0	6.3	6.3	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	3.2	27	1	6	1.0	19.0	19.0	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	3.2	27	1	3	1.0	9.5	9.5	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	3.2	27	1	15	1.0	47.6	47.6	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Placoneis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Placoneis</i>	3.2	27	1	4	1.0	12.7	12.7	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	3.2	27	1	1	1.0	3.2	3.2	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	3.2	27	1	3	1.0	9.5	9.5	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	3.2	27	1	37	1.0	117.3	117.3	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	3.2	27	1	11	1.0	34.9	34.9	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Frustulia</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Frustulia</i>	3.2	27	1	1	1.0	3.2	3.2	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Caloneis</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Caloneis</i>	3.2	27	1	3	1.0	9.5	9.5	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Navicula</i> cf. <i>minima</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	3.2	27	1	2	1.0	6.3	6.3	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	3.2	27	1	6	1.0	19.0	19.0	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Epithemia turgida</i>	Bacillariophyta	Bacillariophyceae	Rhopalodiales	Rhopodiaceae	<i>Epithemia</i>	3.2	27	1	1	1.0	3.2	3.2	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Epithemia sores</i>	Bacillariophyta	Bacillariophyceae	Rhopalodiales	Rhopodiaceae	<i>Epithemia</i>	3.2	27	1	1	1.0	3.2	3.2	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Rhopalodia gibba</i>	Bacillariophyta	Bacillariophyceae	Rhopalodiales	Rhopodiaceae	<i>Rhopalodia</i>	3.2	27	1	5	1.0	15.9	15.9	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	3.2	27	1	75	1.0	237.8	237.8	ok
WQS04B	2	pp19-127-044	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				3.2	27	1	14	1.0	44.4	44.4	Exclude
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Closterium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiales	Closteriaceae	<i>Closterium</i>	3.2	27	1	1	1.0	3.2	3.2	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Calothrix</i> sp.	Cyanophyta	Cyanophyceae	Nostocales	Rivulariaceae	<i>Calothrix</i>	3.2	27	1	9	7.4	28.5	210.5	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	3.2	27	1	5	8.5	15.9	134.8	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	3.2	27	1	1	18.0	3.2	57.1	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	3.2	27	1	3	1.0	9.5	9.5	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	3.2	27	1	45	10.2	142.7	1,455.6	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	3.2	27	1	17	15.9	53.9	857.2	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	3.2	27	1	22	7.9	69.8	548.2	ok
WQS04B	2	pp19-127-044	25-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	3.2	27	1	3	12.3	9.5	117.3	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.8	55	2	5	1.0	3.9	3.9	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Achnanthydyum minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydyum</i>	0.8	55	2	16	1.0	12.5	12.5	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Achnanthydyum</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydyum</i>	0.8	55	2	8	1.0	6.2	6.2	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	0.8	55	2	14	1.0	10.9	10.9	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.8	55	2	2	1.0	1.6	1.6	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Encyonopsis</i> cf. <i>microcephala</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	0.8	55	2	3	1.0	2.3	2.3	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.8	55	2	69	1.0	53.7	53.7	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	0.8	55	2	1	1.0	0.8	0.8	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	0.8	55	2	4	1.0	3.1	3.1	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	0.8	55	2	13	1.0	10.1	10.1	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.8	55	2	1	1.0	0.8	0.8	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.8	55	2	18	1.0	14.0	14.0	ok
WQS04B	3	pp19-127-045	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.8	55	2	11	1.0	8.6	8.6	Exclude
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Closterium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiales	Closteriaceae	<i>Closterium</i>	0.8	55	2	1	1.0	0.8	0.8	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.8	55	2	9	13.2	7.0	92.5	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	0.8	55	2	14	1.0	10.9	10.9	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.8	55	2	15	10.6	11.7	123.4	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.8	55	2	73	10.3	56.8	585.7	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	0.8	55	2	1	16.0	0.8	12.5	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.8	55	2	19	5.4	14.8	80.5	ok
WQS04B	3	pp19-127-045	25-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	0.8	55	2	6	4.4	4.7	20.5	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	2.1	103	0.4	4	1.0	8.3	8.3	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Achnanthydyum minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydyum</i>	2.1	103	0.4	207	1.0	430.2	430.2	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Achnanthydyum</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydyum</i>	2.1	103	0.4	11	1.0	22.9	22.9	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	2.1	103	0.4	23	1.0	47.8	47.8	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	2.1	103	0.4	15	1.0	31.2	31.2	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	2.1	103	0.4	5	1.0	10.4	10.4	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	2.1	103	0.4	4	1.0	8.3	8.3	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Navicula</i> cf. <i>radiosa</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	2.1	103	0.4	1	1.0	2.1	2.1	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	2.1	103	0.4	2	1.0	4.2	4.2	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Rhopalodia gibba</i>	Bacillariophyta	Bacillariophyceae	Rhopalodiales	Rhopodiaceae	<i>Rhopalodia</i>	2.1	103	0.4	1	1.0	2.1	2.1	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				2.1	103	0.4	6	1.0	12.5	12.5	Exclude
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	2.1	103	0.4	5	2.0	10.4	20.8	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	2.1	103	0.4	5	1.0	10.4	10.4	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	2.1	103	0.4	3	10.0	6.2	62.3	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	2.1	103	0.4	9	9.5	18.7	177.7	ok
WQS03-DS	1	pp19-127-079	4-Oct-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	2.1	103	0.4	12	3.1	24.9	78.4	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	2.4	90	0.4	19	1.0	45.2	45.2	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	2.4	90	0.4	131	1.0	311.6	311.6	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	2.4	90	0.4	7	1.0	16.6	16.6	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	2.4	90	0.4	25	1.0	59.5	59.5	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	2.4	90	0.4	24	1.0	57.1	57.1	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	2.4	90	0.4	1	1.0	2.4	2.4	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	2.4	90	0.4	4	1.0	9.5	9.5	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	2.4	90	0.4	8	1.0	19.0	19.0	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	2.4	90	0.4	3	1.0	7.1	7.1	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	2.4	90	0.4	10	1.0	23.8	23.8	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	2.4	90	0.4	8	1.0	19.0	19.0	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Meridion circulare</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Meridion</i>	2.4	90	0.4	3	1.0	7.1	7.1	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				2.4	90	0.4	11	1.0	26.2	26.2	Exclude
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	2.4	90	0.4	15	10.0	35.7	356.8	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	2.4	90	0.4	3	2.2	7.1	15.5	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	2.4	90	0.4	4	20.5	9.5	195.0	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	2.4	90	0.4	17	16.5	40.4	667.1	ok
WQS03-DS	2	pp19-127-080	4-Oct-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	2.4	90	0.4	5	5.0	11.9	59.5	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	1.9	45	1	7	1.0	13.3	13.3	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	1.9	45	1	67	1.0	127.5	127.5	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	1.9	45	1	4	1.0	7.6	7.6	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	1.9	45	1	2	1.0	3.8	3.8	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	1.9	45	1	3	1.0	5.7	5.7	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	1.9	45	1	20	1.0	38.1	38.1	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	1.9	45	1	6	1.0	11.4	11.4	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	1.9	45	1	10	1.0	19.0	19.0	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	1.9	45	1	4	1.0	7.6	7.6	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	1.9	45	1	5	1.0	9.5	9.5	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	1.9	45	1	3	1.0	5.7	5.7	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	1.9	45	1	10	1.0	19.0	19.0	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				1.9	45	1	7	1.0	13.3	13.3	Exclude
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	1.9	45	1	1	2.0	1.9	3.8	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	1.9	45	1	6	1.0	11.4	11.4	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	1.9	45	1	17	21.7	32.3	700.8	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	1.9	45	1	67	7.9	127.5	1,010.1	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	1.9	45	1	5	1.0	9.5	9.5	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	1.9	45	1	53	8.6	100.8	862.8	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	1.9	45	1	4	7.5	7.6	57.1	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	1.9	45	1	6	4.5	11.4	51.4	ok
WQS03-DS	3	pp19-127-081	4-Oct-2019	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				1.9	45	1	1	6.0	1.9	11.4	Exclude
WQS03-DS	3	pp19-127-081	4-Oct-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	1.9	45	1	2	3.0	3.8	11.4	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	1.3	67	1	15	1.0	19.2	19.2	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	1.3	67	1	166	1.0	212.1	212.1	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	1.3	67	1	8	1.0	10.2	10.2	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	1.3	67	1	50	1.0	63.9	63.9	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	1.3	67	1	8	1.0	10.2	10.2	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	1.3	67	1	5	1.0	6.4	6.4	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	1.3	67	1	6	1.0	7.7	7.7	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	1.3	67	1	1	1.0	1.3	1.3	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	1.3	67	1	5	1.0	6.4	6.4	ok
WQS18	1	pp19-127-076	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				1.3	67	1	11	1.0	14.1	14.1	Exclude
WQS18	1	pp19-127-076	4-Oct-2019	<i>Microspora</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Microsporaceae	<i>Microspora</i>	1.3	67	1	1	7.0	1.3	8.9	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	1.3	67	1	2	6.0	2.6	15.3	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	1.3	67	1	8	2.6	10.2	26.6	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	1.3	67	1	5	4.7	6.4	29.8	ok
WQS18	1	pp19-127-076	4-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	1.3	67	1	2	4.0	2.6	10.2	ok
WQS18	1	pp19-127-076	4-Oct-2019	Cyanophyte (filament)	Cyanophyta	Cyanophyceae				1.3	67	1	2	12.0	2.6	30.7	Exclude
WQS18	1	pp19-127-076	4-Oct-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	1.3	67	1	7	6.0	8.9	53.7	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.8	103	1	23	1.0	19.1	19.1	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS18	2	pp19-127-077	4-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	0.8	103	1	97	1.0	80.6	80.6	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	0.8	103	1	15	1.0	12.5	12.5	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	0.8	103	1	58	1.0	48.2	48.2	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.8	103	1	43	1.0	35.7	35.7	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	0.8	103	1	6	1.0	5.0	5.0	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	0.8	103	1	3	1.0	2.5	2.5	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.8	103	1	7	1.0	5.8	5.8	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	0.8	103	1	13	1.0	10.8	10.8	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	0.8	103	1	3	1.0	2.5	2.5	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.8	103	1	9	1.0	7.5	7.5	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.8	103	1	4	1.0	3.3	3.3	ok
WQS18	2	pp19-127-077	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.8	103	1	13	1.0	10.8	10.8	Exclude
WQS18	2	pp19-127-077	4-Oct-2019	<i>Monoraphidium</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	0.8	103	1	1	1.0	0.8	0.8	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.8	103	1	8	4.0	6.7	26.6	ok
WQS18	2	pp19-127-077	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.8	103	1	2	9.0	1.7	15.0	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	4.3	50	0.4	8	1.0	34.2	34.2	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	4.3	50	0.4	188	1.0	804.9	804.9	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	4.3	50	0.4	10	1.0	42.8	42.8	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	4.3	50	0.4	31	1.0	132.7	132.7	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	4.3	50	0.4	1	1.0	4.3	4.3	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	4.3	50	0.4	16	1.0	68.5	68.5	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	4.3	50	0.4	2	1.0	8.6	8.6	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	4.3	50	0.4	3	1.0	12.8	12.8	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Odontidium</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Odontidium</i>	4.3	50	0.4	2	1.0	8.6	8.6	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	4.3	50	0.4	2	1.0	8.6	8.6	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.3	50	0.4	4	1.0	17.1	17.1	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Pinnularia</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Pinnulariaceae	<i>Pinnularia</i>	4.3	50	0.4	1	1.0	4.3	4.3	ok
WQS18	3	pp19-127-078	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				4.3	50	0.4	4	1.0	17.1	17.1	Exclude
WQS18	3	pp19-127-078	4-Oct-2019	<i>Monoraphidium</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	4.3	50	0.4	1	1.0	4.3	4.3	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	4.3	50	0.4	5	10.0	21.4	214.1	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	4.3	50	0.4	10	7.9	42.8	336.4	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	4.3	50	0.4	1	1.0	4.3	4.3	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	4.3	50	0.4	6	8.0	25.7	205.5	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	4.3	50	0.4	4	13.7	17.1	234.0	ok
WQS18	3	pp19-127-078	4-Oct-2019	<i>Audouinella</i> sp.	Rhodophyta	Floriodeophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	4.3	50	0.4	3	5.3	12.8	68.5	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	4.3	10	2	25	1.0	107.0	107.0	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	4.3	10	2	225	1.0	963.3	963.3	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	4.3	10	2	5	1.0	21.4	21.4	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	4.3	10	2	5	1.0	21.4	21.4	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	4.3	10	2	1	1.0	4.3	4.3	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Odontidium</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Odontidium</i>	4.3	10	2	1	1.0	4.3	4.3	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	4.3	10	2	2	1.0	8.6	8.6	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.3	10	2	2	1.0	8.6	8.6	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiphysales	Catenulaceae	<i>Amphora</i>	4.3	10	2	1	1.0	4.3	4.3	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				4.3	10	2	2	1.0	8.6	8.6	Exclude
WQS06-US	1	pp19-127-085	4-Oct-2019	Chlorophyte	Chlorophyta					4.3	10	2	12	4.0	51.4	205.5	Exclude
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	4.3	10	2	1	1.0	4.3	4.3	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	4.3	10	2	2	6.0	8.6	51.4	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	4.3	10	2	3	1.0	12.8	12.8	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	4.3	10	2	11	9.0	47.1	423.8	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	4.3	10	2	5	13.3	21.4	285.4	ok
WQS06-US	1	pp19-127-085	4-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	4.3	10	2	5	4.3	21.4	91.0	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	0.6	73	2	208	1.0	122.0	122.0	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.6	73	2	2	1.0	1.2	1.2	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.6	73	2	6	1.0	3.5	3.5	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.6	73	2	6	1.0	3.5	3.5	Exclude
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Mougeotia</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Zygnematales	Zygnemataceae	<i>Mougeotia</i>	0.6	73	2	8	1.3	4.7	6.3	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	Chlorophyte	Chlorophyta					0.6	73	2	1	3.0	0.6	1.8	Exclude

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	0.6	73	2	1	2.0	0.6	1.2	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.6	73	2	6	4.5	3.5	15.8	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.6	73	2	14	3.7	8.2	30.1	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	0.6	73	2	32	1.0	18.8	18.8	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.6	73	2	12	11.4	7.0	80.2	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.6	73	2	8	19.7	4.7	92.3	ok
WQS06-US	2	pp19-127-086	4-Oct-2019	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				0.6	73	2	1	4.0	0.6	2.3	Exclude
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.6	50	3	198	1.0	113.0	113.0	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.6	50	3	7	1.0	4.0	4.0	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.6	50	3	1	1.0	0.6	0.6	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.6	50	3	4	1.0	2.3	2.3	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.6	50	3	10	1.0	5.7	5.7	Exclude
WQS06-US	3	pp19-127-087	4-Oct-2019	Chlorophyte	Chlorophyta					0.6	50	3	7	4.5	4.0	18.0	Exclude
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	0.6	50	3	4	1.0	2.3	2.3	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.6	50	3	3	12.0	1.7	20.5	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.6	50	3	30	3.6	17.1	61.2	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	0.6	50	3	29	1.0	16.6	16.6	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.6	50	3	15	8.3	8.6	70.9	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.6	50	3	1	7.0	0.6	4.0	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.6	50	3	7	5.5	4.0	22.0	ok
WQS06-US	3	pp19-127-087	4-Oct-2019	Cyanophyte (filament)	Cyanophyta	Cyanophyceae				0.6	50	3	5	8.0	2.9	22.8	Exclude
WQS06-US	3	pp19-127-087	4-Oct-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	0.6	50	3	5	4.0	2.9	11.4	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.4	103	2	90	1.0	37.4	37.4	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.4	103	2	1	1.0	0.4	0.4	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	0.4	103	2	1	1.0	0.4	0.4	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.4	103	2	18	1.0	7.5	7.5	ok
WQS07	1	pp19-127-082	6-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.4	103	2	4	1.0	1.7	1.7	Exclude
WQS07	1	pp19-127-082	6-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	0.4	103	2	8	1.0	3.3	3.3	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.4	103	2	26	8.6	10.8	93.3	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.4	103	2	54	4.6	22.4	103.2	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	0.4	103	2	50	1.0	20.8	20.8	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.4	103	2	30	7.5	12.5	93.5	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.4	103	2	10	16.0	4.2	66.5	ok
WQS07	1	pp19-127-082	6-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.4	103	2	9	8.0	3.7	29.9	ok
WQS07	1	pp19-127-082	6-Oct-2019	Cyanophyte (filament)	Cyanophyta	Cyanophyceae				0.4	103	2	1	6.0	0.4	2.5	Exclude
WQS07	2	pp19-127-083	6-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.9	50	2	11	1.0	9.4	9.4	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.9	50	2	190	1.0	162.7	162.7	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.9	50	2	4	1.0	3.4	3.4	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.9	50	2	8	1.0	6.8	6.8	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.9	50	2	8	1.0	6.8	6.8	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	0.9	50	2	4	1.0	3.4	3.4	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.9	50	2	3	1.0	2.6	2.6	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	0.9	50	2	1	1.0	0.9	0.9	ok
WQS07	2	pp19-127-083	6-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.9	50	2	7	1.0	6.0	6.0	Exclude
WQS07	2	pp19-127-083	6-Oct-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	0.9	50	2	1	6.0	0.9	5.1	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	0.9	50	2	2	1.0	1.7	1.7	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.9	50	2	5	7.7	4.3	32.8	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.9	50	2	5	5.5	4.3	23.5	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	0.9	50	2	43	1.0	36.8	36.8	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.9	50	2	16	10.0	13.7	137.0	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.9	50	2	3	14.0	2.6	36.0	ok
WQS07	2	pp19-127-083	6-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.9	50	2	3	12.0	2.6	30.8	ok
WQS07	2	pp19-127-083	6-Oct-2019	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				0.9	50	2	3	3.0	2.6	7.7	Exclude
WQS07	3	pp19-127-084	6-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.9	50	2	11	1.0	9.4	9.4	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.9	50	2	134	1.0	114.7	114.7	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.9	50	2	3	1.0	2.6	2.6	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.9	50	2	14	1.0	12.0	12.0	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.9	50	2	4	1.0	3.4	3.4	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS07	3	pp19-127-084	6-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	0.9	50	2	5	1.0	4.3	4.3	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.9	50	2	5	1.0	4.3	4.3	ok
WQS07	3	pp19-127-084	6-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.9	50	2	14	1.0	12.0	12.0	Exclude
WQS07	3	pp19-127-084	6-Oct-2019	<i>Mougeotia</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Zygnematales	Zygnemataceae	<i>Mougeotia</i>	0.9	50	2	6	2.5	5.1	12.8	ok
WQS07	3	pp19-127-084	6-Oct-2019	Chlorophyte	Chlorophyta					0.9	50	2	4	2.0	3.4	6.8	Exclude
WQS07	3	pp19-127-084	6-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.9	50	2	89	7.9	76.2	603.3	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.9	50	2	7	7.3	6.0	43.5	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.9	50	2	1	5.0	0.9	4.3	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.9	50	2	3	7.0	2.6	18.0	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	0.9	50	2	1	10.0	0.9	8.6	ok
WQS07	3	pp19-127-084	6-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.9	50	2	9	5.2	7.7	40.1	ok
WQS07	3	pp19-127-084	6-Oct-2019	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				0.9	50	2	2	4.0	1.7	6.8	Exclude
WQS05	1	pp19-127-040	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	3.2	27	1	2	1.0	6.3	6.3	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	3.2	27	1	109	1.0	345.7	345.7	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	3.2	27	1	3	1.0	9.5	9.5	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	3.2	27	1	2	1.0	6.3	6.3	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	3.2	27	1	4	1.0	12.7	12.7	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	3.2	27	1	7	1.0	22.2	22.2	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	3.2	27	1	2	1.0	6.3	6.3	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Odontidium</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Odontidium</i>	3.2	27	1	1	1.0	3.2	3.2	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	3.2	27	1	8	1.0	25.4	25.4	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Navicula</i> cf. <i>minima</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	3.2	27	1	1	1.0	3.2	3.2	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	3.2	27	1	1	1.0	3.2	3.2	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	3.2	27	1	20	1.0	63.4	63.4	ok
WQS05	1	pp19-127-040	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				3.2	27	1	9	1.0	28.5	28.5	Exclude
WQS05	1	pp19-127-040	25-Aug-2019	Chlorophyte	Chlorophyta					3.2	27	1	5	5.4	15.9	85.6	Exclude
WQS05	1	pp19-127-040	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	3.2	27	1	116	14.9	367.9	5,498.5	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	3.2	27	1	1	1.0	3.2	3.2	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	3.2	27	1	10	14.3	31.7	453.0	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	3.2	27	1	5	4.5	15.9	71.4	ok
WQS05	1	pp19-127-040	25-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Flordeiophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	3.2	27	1	8	7.6	25.4	193.4	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.9	33	3	7	1.0	6.1	6.1	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.9	33	3	203	1.0	175.6	175.6	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.9	33	3	9	1.0	7.8	7.8	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.9	33	3	1	1.0	0.9	0.9	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.9	33	3	6	1.0	5.2	5.2	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.9	33	3	2	1.0	1.7	1.7	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	0.9	33	3	2	1.0	1.7	1.7	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Navicula</i> cf. <i>minima</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.9	33	3	2	1.0	1.7	1.7	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.9	33	3	4	1.0	3.5	3.5	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.9	33	3	17	1.0	14.7	14.7	ok
WQS05	2	pp19-127-041	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.9	33	3	5	1.0	4.3	4.3	Exclude
WQS05	2	pp19-127-041	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.9	33	3	19	19.1	16.4	314.6	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.9	33	3	4	12.0	3.5	41.5	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	0.9	33	3	15	1.0	13.0	13.0	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.9	33	3	7	6.3	6.1	38.3	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.9	33	3	8	12.4	6.9	85.8	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.9	33	3	2	3.0	1.7	5.2	ok
WQS05	2	pp19-127-041	25-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Flordeiophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	0.9	33	3	6	5.8	5.2	29.8	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	4.3	50	0.4	9	1.0	38.5	38.5	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	4.3	50	0.4	135	1.0	578.0	578.0	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	4.3	50	0.4	10	1.0	42.8	42.8	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	4.3	50	0.4	2	1.0	8.6	8.6	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	4.3	50	0.4	11	1.0	47.1	47.1	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	4.3	50	0.4	9	1.0	38.5	38.5	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	4.3	50	0.4	13	1.0	55.7	55.7	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	4.3	50	0.4	3	1.0	12.8	12.8	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	4.3	50	0.4	14	1.0	59.9	59.9	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS05	3	pp19-127-042	25-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	4.3	50	0.4	2	1.0	8.6	8.6	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.3	50	0.4	4	1.0	17.1	17.1	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	4.3	50	0.4	12	1.0	51.4	51.4	ok
WQS05	3	pp19-127-042	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				4.3	50	0.4	15	1.0	64.2	64.2	Exclude
WQS05	3	pp19-127-042	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	4.3	50	0.4	50	13.7	214.1	2,925.4	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	4.3	50	0.4	12	13.0	51.4	667.9	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	4.3	50	0.4	1	6.0	4.3	25.7	ok
WQS05	3	pp19-127-042	25-Aug-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	4.3	50	0.4	3	3.0	12.8	38.5	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	30.6	7	0.4	202	1.0	6,177.1	6,177.1	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	30.6	7	0.4	3	1.0	91.7	91.7	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	30.6	7	0.4	4	1.0	122.3	122.3	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	30.6	7	0.4	14	1.0	428.1	428.1	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	30.6	7	0.4	2	1.0	61.2	61.2	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	30.6	7	0.4	1	1.0	30.6	30.6	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Odontidium</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Odontidium</i>	30.6	7	0.4	9	1.0	275.2	275.2	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	30.6	7	0.4	1	1.0	30.6	30.6	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Melosira</i> sp.	Bacillariophyta	Bacillariophyceae	Melosirales	Melosiraceae	<i>Melosira</i>	30.6	7	0.4	10	1.0	305.8	305.8	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	30.6	7	0.4	1	1.0	30.6	30.6	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	30.6	7	0.4	1	1.0	30.6	30.6	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Meridion circulare</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Meridion</i>	30.6	7	0.4	1	1.0	30.6	30.6	ok
WQS16	1	pp19-127-091	6-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				30.6	7	0.4	6	1.0	183.5	183.5	Exclude
WQS16	1	pp19-127-091	6-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	30.6	7	0.4	1	1.0	30.6	30.6	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	30.6	7	0.4	3	6.7	91.7	611.6	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	30.6	7	0.4	33	9.3	1,009.1	9,392.6	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	30.6	7	0.4	7	11.8	214.1	2,533.0	ok
WQS16	1	pp19-127-091	6-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	30.6	7	0.4	1	6.0	30.6	183.5	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	0.4	65	3	215	1.0	94.4	94.4	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	0.4	65	3	7	1.0	3.1	3.1	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	0.4	65	3	22	1.0	9.7	9.7	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.4	65	3	4	1.0	1.8	1.8	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.4	65	3	19	1.0	8.3	8.3	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	0.4	65	3	5	1.0	2.2	2.2	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.4	65	3	6	1.0	2.6	2.6	ok
WQS16	2	pp19-127-092	6-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.4	65	3	14	1.0	6.1	6.1	Exclude
WQS16	2	pp19-127-092	6-Oct-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	0.4	65	3	2	2.0	0.9	1.8	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.4	65	3	3	11.0	1.3	14.5	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.4	65	3	2	1.0	0.9	0.9	ok
WQS16	2	pp19-127-092	6-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.4	65	3	10	6.0	4.4	26.3	ok
WQS16	2	pp19-127-092	6-Oct-2019	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				0.4	65	3	2	10.0	0.9	8.8	Exclude
WQS16	3	pp19-127-093	6-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	2.9	15	2	302	1.0	861.9	861.9	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	2.9	15	2	6	1.0	17.1	17.1	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	2.9	15	2	3	1.0	8.6	8.6	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	2.9	15	2	2	1.0	5.7	5.7	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	2.9	15	2	12	1.0	34.2	34.2	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	2.9	15	2	1	1.0	2.9	2.9	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	2.9	15	2	1	1.0	2.9	2.9	ok
WQS16	3	pp19-127-093	6-Oct-2019	Chlorophyte	Chlorophyta					2.9	15	2	1	2.0	2.9	5.7	Exclude
WQS16	3	pp19-127-093	6-Oct-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	2.9	15	2	1	2.0	2.9	5.7	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	2.9	15	2	6	1.0	17.1	17.1	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	2.9	15	2	3	10.5	8.6	89.9	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	2.9	15	2	2	1.0	5.7	5.7	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	2.9	15	2	19	7.8	54.2	420.3	ok
WQS16	3	pp19-127-093	6-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	2.9	15	2	1	13.0	2.9	37.1	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	1.0	30	3	229	1.0	217.9	217.9	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	1.0	30	3	20	1.0	19.0	19.0	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	1.0	30	3	24	1.0	22.8	22.8	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	1.0	30	3	1	1.0	1.0	1.0	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	1.0	30	3	4	1.0	3.8	3.8	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS17	1	pp19-127-088	6-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	1.0	30	3	7	1.0	6.7	6.7	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	1.0	30	3	3	1.0	2.9	2.9	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Meridion circulare</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Meridion</i>	1.0	30	3	6	1.0	5.7	5.7	ok
WQS17	1	pp19-127-088	6-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				1.0	30	3	5	1.0	4.8	4.8	Exclude
WQS17	1	pp19-127-088	6-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	1.0	30	3	1	1.0	1.0	1.0	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	1.0	30	3	3	14.3	2.9	40.9	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	1.0	30	3	2	22.5	1.9	42.8	ok
WQS17	1	pp19-127-088	6-Oct-2019	<i>Audouinella</i> sp.	Rhodophyta	Florideophyceae	Acrochaetiales	Acrochaetiaceae	<i>Audouinella</i>	1.0	30	3	4	4.7	3.8	17.8	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	2.6	33	1	243	1.0	630.5	630.5	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	2.6	33	1	2	1.0	5.2	5.2	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	2.6	33	1	12	1.0	31.1	31.1	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	2.6	33	1	3	1.0	7.8	7.8	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	2.6	33	1	3	1.0	7.8	7.8	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	2.6	33	1	1	1.0	2.6	2.6	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Meridion circulare</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Meridion</i>	2.6	33	1	2	1.0	5.2	5.2	ok
WQS17	2	pp19-127-089	6-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				2.6	33	1	6	1.0	15.6	15.6	Exclude
WQS17	2	pp19-127-089	6-Oct-2019	<i>Oocystis</i> sp.	Chlorophyta	Trebouxiophyceae	Chlorellales	Oocystaceae	<i>Oocystis</i>	2.6	33	1	17	1.0	44.1	44.1	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	2.6	33	1	1	2.0	2.6	5.2	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	2.6	33	1	4	1.0	10.4	10.4	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	2.6	33	1	2	3.0	5.2	15.6	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	2.6	33	1	2	1.0	5.2	5.2	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	2.6	33	1	12	16.7	31.1	518.9	ok
WQS17	2	pp19-127-089	6-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	2.6	33	1	2	4.0	5.2	20.8	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	2.9	15	2	162	1.0	462.4	462.4	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	2.9	15	2	4	1.0	11.4	11.4	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	2.9	15	2	66	1.0	188.4	188.4	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	2.9	15	2	21	1.0	59.9	59.9	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	2.9	15	2	3	1.0	8.6	8.6	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Fragilaria capucina</i>	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	2.9	15	2	2	1.0	5.7	5.7	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Odontidium</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Odontidium</i>	2.9	15	2	2	1.0	5.7	5.7	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	2.9	15	2	1	1.0	2.9	2.9	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	2.9	15	2	4	1.0	11.4	11.4	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	2.9	15	2	3	1.0	8.6	8.6	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Meridion circulare</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Meridion</i>	2.9	15	2	6	1.0	17.1	17.1	ok
WQS17	3	pp19-127-090	6-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				2.9	15	2	13	1.0	37.1	37.1	Exclude
WQS17	3	pp19-127-090	6-Oct-2019	Chlorophyte	Chlorophyta					2.9	15	2	1	2.0	2.9	5.7	Exclude
WQS17	3	pp19-127-090	6-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	2.9	15	2	5	1.0	14.3	14.3	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	2.9	15	2	1	26.0	2.9	74.2	ok
WQS17	3	pp19-127-090	6-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	2.9	15	2	7	5.0	20.0	99.9	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.3	150	2	8	1.0	2.3	2.3	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	0.3	150	2	98	1.0	28.0	28.0	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	0.3	150	2	13	1.0	3.7	3.7	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	0.3	150	2	2	1.0	0.6	0.6	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	0.3	150	2	5	1.0	1.4	1.4	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.3	150	2	12	1.0	3.4	3.4	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	0.3	150	2	7	1.0	2.0	2.0	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.3	150	2	9	1.0	2.6	2.6	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Placoneis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Placoneis</i>	0.3	150	2	4	1.0	1.1	1.1	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	0.3	150	2	5	1.0	1.4	1.4	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	0.3	150	2	6	1.0	1.7	1.7	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.3	150	2	2	1.0	0.6	0.6	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	0.3	150	2	5	1.0	1.4	1.4	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.3	150	2	7	1.0	2.0	2.0	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.3	150	2	35	1.0	10.0	10.0	ok
WQS08	1	pp19-127-037	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.3	150	2	16	1.0	4.6	4.6	Exclude
WQS08	1	pp19-127-037	25-Aug-2019	<i>Lyngbya</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Lyngbya</i>	0.3	150	2	3	10.0	0.9	8.6	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.3	150	2	16	12.9	4.6	58.7	ok
WQS08	1	pp19-127-037	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.3	150	2	1	12.0	0.3	3.4	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS08	1	pp19-127-037	25-Aug-2019	Cyanophyte (colony)	Cyanophyta	Cyanophyceae				0.3	150	2	3	12.0	0.9	10.3	Exclude
WQS08	1	pp19-127-037	25-Aug-2019	Cyanophyte (filament)	Cyanophyta	Cyanophyceae				0.3	150	2	4	4.5	1.1	5.1	Exclude
WQS08	2	pp19-127-038	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	5.7	150	0.1	14	1.0	79.9	79.9	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	5.7	150	0.1	102	1.0	582.2	582.2	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	5.7	150	0.1	12	1.0	68.5	68.5	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	5.7	150	0.1	2	1.0	11.4	11.4	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	5.7	150	0.1	5	1.0	28.5	28.5	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	5.7	150	0.1	16	1.0	91.3	91.3	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	5.7	150	0.1	10	1.0	57.1	57.1	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	5.7	150	0.1	1	1.0	5.7	5.7	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Odontidium</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Odontidium</i>	5.7	150	0.1	2	1.0	11.4	11.4	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	5.7	150	0.1	6	1.0	34.2	34.2	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	5.7	150	0.1	3	1.0	17.1	17.1	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	5.7	150	0.1	3	1.0	17.1	17.1	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	5.7	150	0.1	2	1.0	11.4	11.4	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	5.7	150	0.1	13	1.0	74.2	74.2	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Stauroneis</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Stauroneidaceae	<i>Stauroneis</i>	5.7	150	0.1	1	1.0	5.7	5.7	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	5.7	150	0.1	3	1.0	17.1	17.1	ok
WQS08	2	pp19-127-038	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				5.7	150	0.1	13	1.0	74.2	74.2	Exclude
WQS08	2	pp19-127-038	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	5.7	150	0.1	4	7.0	22.8	159.8	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	5.7	150	0.1	12	16.9	68.5	1,154.7	ok
WQS08	2	pp19-127-038	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	5.7	150	0.1	11	8.0	62.8	502.3	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	5.7	150	0.1	3	1.0	17.1	17.1	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	5.7	150	0.1	145	1.0	827.7	827.7	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	5.7	150	0.1	5	1.0	28.5	28.5	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	5.7	150	0.1	2	1.0	11.4	11.4	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	5.7	150	0.1	3	1.0	17.1	17.1	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	5.7	150	0.1	35	1.0	199.8	199.8	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	5.7	150	0.1	1	1.0	5.7	5.7	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	5.7	150	0.1	13	1.0	74.2	74.2	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	5.7	150	0.1	3	1.0	17.1	17.1	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	5.7	150	0.1	4	1.0	22.8	22.8	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	5.7	150	0.1	8	1.0	45.7	45.7	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	5.7	150	0.1	28	1.0	159.8	159.8	ok
WQS08	3	pp19-127-039	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				5.7	150	0.1	19	1.0	108.5	108.5	Exclude
WQS08	3	pp19-127-039	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	5.7	150	0.1	15	10.5	85.6	899.0	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	5.7	150	0.1	14	12.0	79.9	959.0	ok
WQS08	3	pp19-127-039	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	5.7	150	0.1	6	11.0	34.2	376.7	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.3	55	6	151	1.0	39.2	39.2	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	0.3	55	6	8	1.0	2.1	2.1	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	0.3	55	6	4	1.0	1.0	1.0	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.3	55	6	9	1.0	2.3	2.3	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	0.3	55	6	6	1.0	1.6	1.6	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.3	55	6	6	1.0	1.6	1.6	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	0.3	55	6	2	1.0	0.5	0.5	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	0.3	55	6	5	1.0	1.3	1.3	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.3	55	6	5	1.0	1.3	1.3	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.3	55	6	9	1.0	2.3	2.3	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.3	55	6	39	1.0	10.1	10.1	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Tabellaria flocculosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	0.3	55	6	1	1.0	0.3	0.3	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiosphaerales	Catenulaceae	<i>Amphora</i>	0.3	55	6	4	1.0	1.0	1.0	ok
WQS09	1	pp19-127-034	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.3	55	6	20	1.0	5.2	5.2	Exclude
WQS09	1	pp19-127-034	25-Aug-2019	<i>Oocystis</i> sp.	Chlorophyta	Trebouxiophyceae	Chlorellales	Oocystaceae	<i>Oocystis</i>	0.3	55	6	5	1.0	1.3	1.3	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	0.3	55	6	1	3.0	0.3	0.8	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.3	55	6	2	8.0	0.5	4.2	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.3	55	6	2	1.0	0.5	0.5	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	0.3	55	6	4	1.0	1.0	1.0	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Heteroleibleinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibleinia</i>	0.3	55	6	6	9.3	1.6	14.5	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS09	1	pp19-127-034	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.3	55	6	11	19.3	2.9	55.0	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	0.3	55	6	3	7.0	0.8	5.4	ok
WQS09	1	pp19-127-034	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.3	55	6	7	7.2	1.8	13.1	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.6	50	3	3	1.0	1.7	1.7	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	0.6	50	3	202	1.0	115.3	115.3	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	0.6	50	3	11	1.0	6.3	6.3	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	0.6	50	3	1	1.0	0.6	0.6	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.6	50	3	15	1.0	8.6	8.6	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	0.6	50	3	5	1.0	2.9	2.9	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.6	50	3	3	1.0	1.7	1.7	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	0.6	50	3	6	1.0	3.4	3.4	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.6	50	3	4	1.0	2.3	2.3	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.6	50	3	39	1.0	22.3	22.3	ok
WQS09	2	pp19-127-035	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.6	50	3	13	1.0	7.4	7.4	Exclude
WQS09	2	pp19-127-035	25-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	0.6	50	3	2	3.0	1.1	3.4	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.6	50	3	2	14.0	1.1	16.0	ok
WQS09	2	pp19-127-035	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	0.6	50	3	1	4.0	0.6	2.3	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	5.7	15	1	2	1.0	11.4	11.4	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	5.7	15	1	308	1.0	1,758.1	1,758.1	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	5.7	15	1	2	1.0	11.4	11.4	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	5.7	15	1	5	1.0	28.5	28.5	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	5.7	15	1	4	1.0	22.8	22.8	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	5.7	15	1	9	1.0	51.4	51.4	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiosiphysales	Catenulaceae	<i>Amphora</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09	3	pp19-127-036	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				5.7	15	1	6	1.0	34.2	34.2	Exclude
WQS09	3	pp19-127-036	25-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09	3	pp19-127-036	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	5.7	15	1	1	10.0	5.7	57.1	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	4.3	20	1	18	1.0	77.1	77.1	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	4.3	20	1	109	1.0	466.6	466.6	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthydium</i>	4.3	20	1	14	1.0	59.9	59.9	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	4.3	20	1	2	1.0	8.6	8.6	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	4.3	20	1	3	1.0	12.8	12.8	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	4.3	20	1	8	1.0	34.2	34.2	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Encyonopsis</i> cf. <i>microcephala</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	4.3	20	1	6	1.0	25.7	25.7	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	4.3	20	1	6	1.0	25.7	25.7	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	4.3	20	1	8	1.0	34.2	34.2	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	4.3	20	1	15	1.0	64.2	64.2	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Diadesmis</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Diadesmidaceae	<i>Diadesmis</i>	4.3	20	1	9	1.0	38.5	38.5	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Navicula</i> cf. <i>radiosa</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Navicula</i> cf. <i>rhynchocephala</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.3	20	1	2	1.0	8.6	8.6	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.3	20	1	8	1.0	34.2	34.2	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	4.3	20	1	16	1.0	68.5	68.5	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiosiphysales	Catenulaceae	<i>Amphora</i>	4.3	20	1	2	1.0	8.6	8.6	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				4.3	20	1	15	1.0	64.2	64.2	Exclude
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Closterium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Closteriaceae	<i>Closterium</i>	4.3	20	1	2	1.0	8.6	8.6	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	4.3	20	1	20	1.0	85.6	85.6	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Spondylosium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Spondylosium</i>	4.3	20	1	3	1.0	12.8	12.8	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Oocystis</i> sp.	Chlorophyta	Trebouxiophyceae	Chlorellales	Oocystaceae	<i>Oocystis</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Ankistrodesmus</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Ankistrodesmus</i>	4.3	20	1	1	3.0	4.3	12.8	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Monoraphidium</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	4.3	20	1	4	1.0	17.1	17.1	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	4.3	20	1	4	3.6	17.1	61.6	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	4.3	20	1	3	1.0	12.8	12.8	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	4.3	20	1	6	23.0	25.7	590.8	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Merismopedia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Merismopediaceae	<i>Merismopedia</i>	4.3	20	1	2	12.0	8.6	102.7	ok
WQS11-US	1	pp19-127-031	24-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	4.3	20	1	37	5.0	158.4	792.0	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	12.2	70	0.1	21	1.0	256.9	256.9	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	12.2	70	0.1	92	1.0	1,125.3	1,125.3	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	12.2	70	0.1	13	1.0	159.0	159.0	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	12.2	70	0.1	1	1.0	12.2	12.2	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	12.2	70	0.1	4	1.0	48.9	48.9	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	12.2	70	0.1	14	1.0	171.2	171.2	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	12.2	70	0.1	1	1.0	12.2	12.2	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	12.2	70	0.1	40	1.0	489.3	489.3	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	12.2	70	0.1	12	1.0	146.8	146.8	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	12.2	70	0.1	1	1.0	12.2	12.2	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Diadesmis</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Diadesmidaceae	<i>Diadesmis</i>	12.2	70	0.1	4	1.0	48.9	48.9	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Navicula</i> cf. <i>radiosa</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	12.2	70	0.1	2	1.0	24.5	24.5	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	12.2	70	0.1	13	1.0	159.0	159.0	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	12.2	70	0.1	24	1.0	293.6	293.6	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				12.2	70	0.1	16	1.0	195.7	195.7	Exclude
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmídiales	Desmidiaceae	<i>Cosmarium</i>	12.2	70	0.1	5	1.0	61.2	61.2	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Monoraphidium</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	12.2	70	0.1	2	1.0	24.5	24.5	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	12.2	70	0.1	2	1.0	24.5	24.5	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Heteroleibleinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibleinia</i>	12.2	70	0.1	9	9.7	110.1	1,064.2	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	12.2	70	0.1	7	19.7	85.6	1,683.9	ok
WQS11-US	2	pp19-127-032	24-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	12.2	70	0.1	19	5.9	232.4	1,368.6	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	34.2	50	0.05	32	1.0	1,096.0	1,096.0	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	34.2	50	0.05	113	1.0	3,870.1	3,870.1	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	34.2	50	0.05	14	1.0	479.5	479.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	34.2	50	0.05	4	1.0	137.0	137.0	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	34.2	50	0.05	2	1.0	68.5	68.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	34.2	50	0.05	6	1.0	205.5	205.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	34.2	50	0.05	12	1.0	411.0	411.0	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	34.2	50	0.05	1	1.0	34.2	34.2	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	34.2	50	0.05	12	1.0	411.0	411.0	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	34.2	50	0.05	4	1.0	137.0	137.0	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	34.2	50	0.05	22	1.0	753.5	753.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	34.2	50	0.05	11	1.0	376.7	376.7	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	34.2	50	0.05	4	1.0	137.0	137.0	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Melosira</i> sp.	Bacillariophyta	Bacillariophyceae	Melosirales	Melosiraceae	<i>Melosira</i>	34.2	50	0.05	2	1.0	68.5	68.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	34.2	50	0.05	3	1.0	102.7	102.7	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Navicula</i> cf. <i>minima</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	34.2	50	0.05	2	1.0	68.5	68.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	34.2	50	0.05	10	1.0	342.5	342.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Pinnularia</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Pinnulariaceae	<i>Pinnularia</i>	34.2	50	0.05	1	1.0	34.2	34.2	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Surirella</i> sp.	Bacillariophyta	Bacillariophyceae	Surirellales	Surirellaceae	<i>Surirella</i>	34.2	50	0.05	2	1.0	68.5	68.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	34.2	50	0.05	8	1.0	274.0	274.0	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiophysales	Catenulaceae	<i>Amphora</i>	34.2	50	0.05	2	1.0	68.5	68.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				34.2	50	0.05	15	1.0	513.7	513.7	Exclude
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmídiales	Desmidiaceae	<i>Cosmarium</i>	34.2	50	0.05	4	1.0	137.0	137.0	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Spondylosium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmídiales	Desmidiaceae	<i>Spondylosium</i>	34.2	50	0.05	2	1.0	68.5	68.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Scenedesmus</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Scenedesmaceae	<i>Scenedesmus</i>	34.2	50	0.05	1	2.0	34.2	68.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Monoraphidium</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	34.2	50	0.05	3	1.0	102.7	102.7	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	34.2	50	0.05	2	1.0	68.5	68.5	ok
WQS11-US	3	pp19-127-033	24-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	34.2	50	0.05	11	5.9	376.7	2,206.6	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Aulacoseira</i> sp.	Bacillariophyta	Bacillariophyceae	Aulacoseirales	Aulacoseiraceae	<i>Aulacoseira</i>	6.8	63	0.2	3	1.0	20.4	20.4	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	6.8	63	0.2	28	1.0	190.3	190.3	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	6.8	63	0.2	76	1.0	516.5	516.5	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	6.8	63	0.2	15	1.0	101.9	101.9	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	6.8	63	0.2	3	1.0	20.4	20.4	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	6.8	63	0.2	1	1.0	6.8	6.8	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	6.8	63	0.2	9	1.0	61.2	61.2	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	6.8	63	0.2	7	1.0	47.6	47.6	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	6.8	63	0.2	30	1.0	203.9	203.9	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS12	1	pp19-127-028	24-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	6.8	63	0.2	16	1.0	108.7	108.7	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	6.8	63	0.2	7	1.0	47.6	47.6	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Melosira</i> sp.	Bacillariophyta	Bacillariophyceae	Melosirales	Melosiraceae	<i>Melosira</i>	6.8	63	0.2	14	1.0	95.1	95.1	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	6.8	63	0.2	1	1.0	6.8	6.8	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Diadesmis</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Diadesmidaceae	<i>Diadesmis</i>	6.8	63	0.2	15	1.0	101.9	101.9	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Navicula</i> cf. <i>radiosa</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	6.8	63	0.2	2	1.0	13.6	13.6	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Navicula</i> cf. <i>rhynchocephala</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	6.8	63	0.2	7	1.0	47.6	47.6	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	6.8	63	0.2	7	1.0	47.6	47.6	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Epithemia sorex</i>	Bacillariophyta	Bacillariophyceae	Rhopalodiales	Rhopalodiaceae	<i>Epithemia</i>	6.8	63	0.2	2	1.0	13.6	13.6	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Surirella</i> sp.	Bacillariophyta	Bacillariophyceae	Surirellales	Surirellaceae	<i>Surirella</i>	6.8	63	0.2	1	1.0	6.8	6.8	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	6.8	63	0.2	18	1.0	122.3	122.3	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Tabellaria fenestrata</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	6.8	63	0.2	1	1.0	6.8	6.8	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiosphysales	Catenulaceae	<i>Amphora</i>	6.8	63	0.2	2	1.0	13.6	13.6	ok
WQS12	1	pp19-127-028	24-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				6.8	63	0.2	14	1.0	95.1	95.1	Exclude
WQS12	1	pp19-127-028	24-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	6.8	63	0.2	4	1.0	27.2	27.2	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Monoraphidium</i> sp.	Chlorophyta		Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	6.8	63	0.2	8	1.0	54.4	54.4	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta		Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	6.8	63	0.2	4	10.0	27.2	271.8	ok
WQS12	1	pp19-127-028	24-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta		Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	6.8	63	0.2	7	4.8	47.6	225.9	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	14.3	30	0.2	25	1.0	356.8	356.8	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	14.3	30	0.2	75	1.0	1,070.3	1,070.3	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Achnanthyidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	14.3	30	0.2	11	1.0	157.0	157.0	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	14.3	30	0.2	1	1.0	14.3	14.3	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	14.3	30	0.2	14	1.0	199.8	199.8	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	14.3	30	0.2	1	1.0	14.3	14.3	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	14.3	30	0.2	10	1.0	142.7	142.7	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Placoneis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Placoneis</i>	14.3	30	0.2	1	1.0	14.3	14.3	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	14.3	30	0.2	21	1.0	299.7	299.7	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	14.3	30	0.2	25	1.0	356.8	356.8	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	14.3	30	0.2	2	1.0	28.5	28.5	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	14.3	30	0.2	2	1.0	28.5	28.5	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Navicula</i> cf. <i>minima</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	30	0.2	4	1.0	57.1	57.1	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Navicula</i> cf. <i>radiosa</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	30	0.2	4	1.0	57.1	57.1	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Navicula</i> cf. <i>rhynchocephala</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	30	0.2	2	1.0	28.5	28.5	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	30	0.2	18	1.0	256.9	256.9	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	14.3	30	0.2	28	1.0	399.6	399.6	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Tabellaria flocculosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	14.3	30	0.2	1	1.0	14.3	14.3	ok
WQS12	2	pp19-127-029	24-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				14.3	30	0.2	20	1.0	285.4	285.4	Exclude
WQS12	2	pp19-127-029	24-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	14.3	30	0.2	6	1.0	85.6	85.6	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Scenedesmus</i> sp.	Chlorophyta		Sphaeropleales	Scenedesmaceae	<i>Scenedesmus</i>	14.3	30	0.2	2	1.0	28.5	28.5	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Monoraphidium</i> sp.	Chlorophyta		Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	14.3	30	0.2	5	1.0	71.4	71.4	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta		Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	14.3	30	0.2	1	1.0	14.3	14.3	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta		Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	14.3	30	0.2	4	7.3	57.1	413.8	ok
WQS12	2	pp19-127-029	24-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta		Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	14.3	30	0.2	19	4.9	271.1	1,331.0	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	14.3	60	0.1	45	1.0	642.2	642.2	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	14.3	60	0.1	107	1.0	1,526.9	1,526.9	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Achnanthyidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	14.3	60	0.1	26	1.0	371.0	371.0	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	14.3	60	0.1	4	1.0	57.1	57.1	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	14.3	60	0.1	1	1.0	14.3	14.3	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	14.3	60	0.1	6	1.0	85.6	85.6	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	14.3	60	0.1	7	1.0	99.9	99.9	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	14.3	60	0.1	9	1.0	128.4	128.4	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	14.3	60	0.1	7	1.0	99.9	99.9	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	14.3	60	0.1	3	1.0	42.8	42.8	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Melosira</i> sp.	Bacillariophyta	Bacillariophyceae	Melosirales	Melosiraceae	<i>Melosira</i>	14.3	60	0.1	3	1.0	42.8	42.8	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	14.3	60	0.1	3	1.0	42.8	42.8	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Caloneis</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Caloneis</i>	14.3	60	0.1	1	1.0	14.3	14.3	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Navicula</i> cf. <i>radiosa</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	60	0.1	3	1.0	42.8	42.8	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	60	0.1	10	1.0	142.7	142.7	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS12	3	pp19-127-030	24-Aug-2019	<i>Epithemia sorex</i>	Bacillariophyta	Bacillariophyceae	Rhopalodiales	Rhopalodiaceae	<i>Epithemia</i>	14.3	60	0.1	2	1.0	28.5	28.5	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	14.3	60	0.1	29	1.0	413.8	413.8	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Tabellaria flocculosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	14.3	60	0.1	2	1.0	28.5	28.5	ok
WQS12	3	pp19-127-030	24-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				14.3	60	0.1	15	1.0	214.1	214.1	Exclude
WQS12	3	pp19-127-030	24-Aug-2019	<i>Closterium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Closteriaceae	<i>Closterium</i>	14.3	60	0.1	1	1.0	14.3	14.3	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	14.3	60	0.1	4	1.0	57.1	57.1	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Monoraphidium</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	14.3	60	0.1	2	1.0	28.5	28.5	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	14.3	60	0.1	5	29.3	71.4	2,093.0	ok
WQS12	3	pp19-127-030	24-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	14.3	60	0.1	13	7.1	185.5	1,325.1	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	0.9	140	0.7	10	1.0	8.7	8.7	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	0.9	140	0.7	150	1.0	131.1	131.1	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Achnanthyidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	0.9	140	0.7	11	1.0	9.6	9.6	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	0.9	140	0.7	2	1.0	1.7	1.7	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	0.9	140	0.7	8	1.0	7.0	7.0	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	0.9	140	0.7	4	1.0	3.5	3.5	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	0.9	140	0.7	13	1.0	11.4	11.4	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	0.9	140	0.7	11	1.0	9.6	9.6	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	0.9	140	0.7	2	1.0	1.7	1.7	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	0.9	140	0.7	1	1.0	0.9	0.9	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	0.9	140	0.7	4	1.0	3.5	3.5	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	0.9	140	0.7	5	1.0	4.4	4.4	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	0.9	140	0.7	16	1.0	14.0	14.0	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiophysales	Catenulaceae	<i>Amphora</i>	0.9	140	0.7	3	1.0	2.6	2.6	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				0.9	140	0.7	15	1.0	13.1	13.1	Exclude
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	0.9	140	0.7	1	2.0	0.9	1.7	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	0.9	140	0.7	31	19.5	27.1	529.2	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	0.9	140	0.7	9	9.5	7.9	74.7	ok
WQS04B-FD	1	pp19-127-052	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	0.9	140	0.7	11	18.8	9.6	180.7	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	2.1	27	1.5	146	1.0	308.7	308.7	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Achnanthyidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	2.1	27	1.5	2	1.0	4.2	4.2	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	2.1	27	1.5	1	1.0	2.1	2.1	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Encyonopsis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	2.1	27	1.5	1	1.0	2.1	2.1	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	2.1	27	1.5	8	1.0	16.9	16.9	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	2.1	27	1.5	1	1.0	2.1	2.1	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	2.1	27	1.5	3	1.0	6.3	6.3	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	2.1	27	1.5	2	1.0	4.2	4.2	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	2.1	27	1.5	4	1.0	8.5	8.5	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				2.1	27	1.5	5	1.0	10.6	10.6	Exclude
WQS04B-FD	2	pp19-127-053	25-Aug-2019	Chlorophyte	Chlorophyta					2.1	27	1.5	1	11.0	2.1	23.3	Exclude
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	2.1	27	1.5	4	1.0	8.5	8.5	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	2.1	27	1.5	115	20.7	243.1	5,030.8	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	2.1	27	1.5	4	1.0	8.5	8.5	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	2.1	27	1.5	13	25.3	27.5	696.3	ok
WQS04B-FD	2	pp19-127-053	25-Aug-2019	<i>Tapinothrix</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Tapinothrix</i>	2.1	27	1.5	1	10.0	2.1	21.1	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	2.6	47	0.7	16	1.0	41.6	41.6	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Achnanthyidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	2.6	47	0.7	91	1.0	236.8	236.8	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Achnanthyidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthyidium</i>	2.6	47	0.7	8	1.0	20.8	20.8	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	2.6	47	0.7	2	1.0	5.2	5.2	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	2.6	47	0.7	22	1.0	57.3	57.3	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	2.6	47	0.7	5	1.0	13.0	13.0	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Odontidium</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Odontidium</i>	2.6	47	0.7	1	1.0	2.6	2.6	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	2.6	47	0.7	16	1.0	41.6	41.6	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	2.6	47	0.7	4	1.0	10.4	10.4	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	2.6	47	0.7	6	1.0	15.6	15.6	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				2.6	47	0.7	7	1.0	18.2	18.2	Exclude
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	2.6	47	0.7	107	15.9	278.5	4,436.9	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	2.6	47	0.7	1	1.0	2.6	2.6	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	2.6	47	0.7	7	13.3	18.2	241.4	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	2.6	47	0.7	7	16.8	18.2	306.1	ok
WQS04B-FD	3	pp19-127-054	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	2.6	47	0.7	3	5.0	7.8	39.0	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	4.3	50	0.4	25	1.0	107.0	107.0	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	4.3	50	0.4	113	1.0	483.8	483.8	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	4.3	50	0.4	5	1.0	21.4	21.4	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	4.3	50	0.4	2	1.0	8.6	8.6	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	4.3	50	0.4	11	1.0	47.1	47.1	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	4.3	50	0.4	11	1.0	47.1	47.1	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	4.3	50	0.4	16	1.0	68.5	68.5	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	4.3	50	0.4	6	1.0	25.7	25.7	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	4.3	50	0.4	2	1.0	8.6	8.6	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	4.3	50	0.4	5	1.0	21.4	21.4	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.3	50	0.4	3	1.0	12.8	12.8	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	4.3	50	0.4	12	1.0	51.4	51.4	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				4.3	50	0.4	10	1.0	42.8	42.8	Exclude
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	4.3	50	0.4	46	14.8	196.9	2,921.2	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	4.3	50	0.4	8	11.0	34.2	376.7	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	4.3	50	0.4	11	22.0	47.1	1,036.0	ok
WQS05-QA	3	pp19-127-042_QA	25-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	4.3	50	0.4	5	8.0	21.4	171.2	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	1.4	20	3	245	1.0	349.6	349.6	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	1.4	20	3	1	1.0	1.4	1.4	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	1.4	20	3	1	1.0	1.4	1.4	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	Chlorophyte	Chlorophyta					1.4	20	3	3	2.5	4.3	10.7	Exclude
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	1.4	20	3	8	3.3	11.4	38.1	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	1.4	20	3	7	1.0	10.0	10.0	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	1.4	20	3	11	5.7	15.7	89.0	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	1.4	20	3	14	1.0	20.0	20.0	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	1.4	20	3	11	14.2	15.7	222.4	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	1.4	20	3	2	4.0	2.9	11.4	ok
WQS06-US-FD	1	pp19-127-094	4-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	1.4	20	3	3	11.0	4.3	47.1	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	1.6	55	1	262	1.0	407.9	407.9	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	1.6	55	1	3	1.0	4.7	4.7	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	1.6	55	1	3	1.0	4.7	4.7	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	1.6	55	1	2	1.0	3.1	3.1	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	1.6	55	1	6	1.0	9.3	9.3	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	1.6	55	1	1	1.0	1.6	1.6	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	1.6	55	1	3	1.0	4.7	4.7	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Meridion circulare</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Meridion</i>	1.6	55	1	1	1.0	1.6	1.6	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				1.6	55	1	3	1.0	4.7	4.7	Exclude
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	1.6	55	1	5	2.3	7.8	18.2	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Gloeocapsa</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Mycrocystaceae	<i>Gloeocapsa</i>	1.6	55	1	1	6.0	1.6	9.3	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	1.6	55	1	9	7.3	14.0	101.6	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	1.6	55	1	2	1.0	3.1	3.1	ok
WQS06-US-FD	2	pp19-127-095	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	1.6	55	1	4	11.7	6.2	72.6	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	1.1	80	1	10	1.0	10.7	10.7	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Achnanthydium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	1.1	80	1	149	1.0	159.5	159.5	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Achnanthydium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthydiaceae	<i>Achnanthydium</i>	1.1	80	1	2	1.0	2.1	2.1	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	1.1	80	1	8	1.0	8.6	8.6	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	1.1	80	1	7	1.0	7.5	7.5	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	1.1	80	1	2	1.0	2.1	2.1	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	1.1	80	1	5	1.0	5.4	5.4	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	1.1	80	1	3	1.0	3.2	3.2	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Hannaea arcus</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Hannaea</i>	1.1	80	1	1	1.0	1.1	1.1	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	1.1	80	1	4	1.0	4.3	4.3	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				1.1	80	1	5	1.0	5.4	5.4	Exclude
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	Chlorophyte	Chlorophyta					1.1	80	1	4	2.0	4.3	8.6	Exclude
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Phormidium</i> sp.	Cyanophyta	Cyanophyceae	Oscillatoriales	Oscillatoriaceae	<i>Phormidium</i>	1.1	80	1	32	11.6	34.2	397.3	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	1.1	80	1	15	3.0	16.1	48.2	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	1.1	80	1	27	1.0	28.9	28.9	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	1.1	80	1	22	8.1	23.5	191.3	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	1.1	80	1	10	20.4	10.7	218.3	ok
WQS06-US-FD	3	pp19-127-096	4-Oct-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	1.1	80	1	1	18.0	1.1	19.3	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	5.7	15	1	304	1.0	1,735.3	1,735.3	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	5.7	15	1	2	1.0	11.4	11.4	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	5.7	15	1	2	1.0	11.4	11.4	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	5.7	15	1	7	1.0	40.0	40.0	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	5.7	15	1	5	1.0	28.5	28.5	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Epithemia sorex</i>	Bacillariophyta	Bacillariophyceae	Rhopalodiales	Rhopalodiaceae	<i>Epithemia</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	5.7	15	1	10	1.0	57.1	57.1	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiosphysales	Catenulaceae	<i>Amphora</i>	5.7	15	1	1	1.0	5.7	5.7	ok
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				5.7	15	1	11	1.0	62.8	62.8	Exclude
WQS09-QA	3	pp19-127-036_QA	25-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	5.7	15	1	1	10.0	5.7	57.1	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	4.3	20	1	9	1.0	38.5	38.5	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	4.3	20	1	93	1.0	398.1	398.1	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	4.3	20	1	12	1.0	51.4	51.4	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	4.3	20	1	3	1.0	12.8	12.8	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Cymbella</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Cymbella</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Didymosphenia geminata</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Cymbellaceae	<i>Didymosphenia</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	4.3	20	1	13	1.0	55.7	55.7	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Encyonopsis</i> cf. <i>microcephala</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	4.3	20	1	3	1.0	12.8	12.8	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	4.3	20	1	16	1.0	68.5	68.5	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	4.3	20	1	9	1.0	38.5	38.5	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	4.3	20	1	18	1.0	77.1	77.1	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	4.3	20	1	2	1.0	8.6	8.6	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Melosira</i> sp.	Bacillariophyta	Bacillariophyceae	Melosirales	Melosiraceae	<i>Melosira</i>	4.3	20	1	2	1.0	8.6	8.6	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Amphipleura pellucida</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Amphipleura</i>	4.3	20	1	2	1.0	8.6	8.6	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Frustulia</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Amphipleuraceae	<i>Frustulia</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Navicula</i> cf. <i>rhynchocephala</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	4.3	20	1	5	1.0	21.4	21.4	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Epithemia sorex</i>	Bacillariophyta	Bacillariophyceae	Rhopalodiales	Rhopalodiaceae	<i>Epithemia</i>	4.3	20	1	2	1.0	8.6	8.6	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	4.3	20	1	9	1.0	38.5	38.5	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Tabellaria flocculosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiosphysales	Catenulaceae	<i>Amphora</i>	4.3	20	1	3	1.0	12.8	12.8	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				4.3	20	1	17	1.0	72.8	72.8	Exclude
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	4.3	20	1	14	1.0	59.9	59.9	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Spondylosium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Spondylosium</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Mougeotia</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Zygnematales	Zygnemataceae	<i>Mougeotia</i>	4.3	20	1	1	1.0	4.3	4.3	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Scenedesmus</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Scenedesmaceae	<i>Scenedesmus</i>	4.3	20	1	1	4.0	4.3	17.1	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Monoraphidium</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	4.3	20	1	2	1.0	8.6	8.6	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	4.3	20	1	5	1.0	21.4	21.4	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Heteroleibeinia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Heteroleibleiniaceae	<i>Heteroleibeinia</i>	4.3	20	1	3	12.5	12.8	160.5	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	4.3	20	1	3	8.5	12.8	109.2	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Merismopedia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Merismopediaceae	<i>Merismopedia</i>	4.3	20	1	2	8.0	8.6	68.5	ok
WQS11-US-QA	1	pp19-127-031_QA	24-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	4.3	20	1	38	6.1	162.7	994.2	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Aulacoseira</i> sp.	Bacillariophyta	Bacillariophyceae	Aulacoseirales	Aulacoseiraceae	<i>Aulacoseira</i>	14.3	30	0.2	2	1.0	28.5	28.5	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	14.3	30	0.2	31	1.0	442.4	442.4	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	14.3	30	0.2	79	1.0	1,127.4	1,127.4	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	14.3	30	0.2	14	1.0	199.8	199.8	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	14.3	30	0.2	2	1.0	28.5	28.5	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	14.3	30	0.2	13	1.0	185.5	185.5	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Encyonopsis</i> cf. <i>microcephala</i>	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonopsis</i>	14.3	30	0.2	1	1.0	14.3	14.3	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	14.3	30	0.2	11	1.0	157.0	157.0	ok

Appendix 10-B. Stream Periphyton, Tenas Project, 2017 to 2019

Site	Replicate	Lab Sample ID	Date	Taxon	Phylum	Class	Order	Family	Genus	Microscope Factor (cm ²)	Fields of View Counted	Subsample Volume (mL)	Units Counted	Number of Cells/ Unit	Unit Density (cm ²)	Cell Density (cm ³)	Excluded Taxa (Density Only)
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Placoneis</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Placoneis</i>	14.3	30	0.2	3	1.0	42.8	42.8	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Fragilaria</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Fragilaria</i>	14.3	30	0.2	17	1.0	242.6	242.6	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	14.3	30	0.2	14	1.0	199.8	199.8	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	14.3	30	0.2	4	1.0	57.1	57.1	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Navicula</i> cf. <i>minima</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	30	0.2	2	1.0	28.5	28.5	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Navicula</i> cf. <i>radiosa</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	30	0.2	2	1.0	28.5	28.5	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Navicula</i> cf. <i>rhynchocephala</i>	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	30	0.2	2	1.0	28.5	28.5	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Navicula</i> sp.	Bacillariophyta	Bacillariophyceae	Naviculales	Naviculaceae	<i>Navicula</i>	14.3	30	0.2	7	1.0	99.9	99.9	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Surirella</i> sp.	Bacillariophyta	Bacillariophyceae	Surirellales	Surirellaceae	<i>Surirella</i>	14.3	30	0.2	1	1.0	14.3	14.3	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	14.3	30	0.2	34	1.0	485.2	485.2	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Tabellaria flocculosa</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Tabellaria</i>	14.3	30	0.2	4	1.0	57.1	57.1	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Amphora</i> sp.	Bacillariophyta	Bacillariophyceae	Thalassiophysales	Catenulaceae	<i>Amphora</i>	14.3	30	0.2	1	1.0	14.3	14.3	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				14.3	30	0.2	21	1.0	299.7	299.7	Exclude
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Cosmarium</i> sp.	Charophyta	Conjugatophyceae (Zygnematophyceae)	Desmidiiales	Desmidiaceae	<i>Cosmarium</i>	14.3	30	0.2	5	1.0	71.4	71.4	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Monoraphidium</i> sp.	Chlorophyta	Chlorophyceae	Sphaeropleales	Selenastraceae	<i>Monoraphidium</i>	14.3	30	0.2	4	1.0	57.1	57.1	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Clastidium</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Clastidium</i>	14.3	30	0.2	3	1.0	42.8	42.8	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	14.3	30	0.2	4	12.3	57.1	704.0	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Merismopedia</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Merismopediaceae	<i>Merismopedia</i>	14.3	30	0.2	1	8.0	14.3	114.2	ok
WQS12-QA	2	pp19-127-029_QA	24-Aug-2019	<i>Pseudanabaena</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Pseudanabaenaceae	<i>Pseudanabaena</i>	14.3	30	0.2	18	7.9	256.9	2,020.7	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Nitzschia</i> sp.	Bacillariophyta	Bacillariophyceae	Bacillariales	Bacillariaceae	<i>Nitzschia</i>	2.9	15	2	2	1.0	5.7	5.7	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Achnanthidium minutissimum</i>	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	2.9	15	2	160	1.0	456.7	456.7	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Achnanthidium</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Achnanthidiaceae	<i>Achnanthidium</i>	2.9	15	2	3	1.0	8.6	8.6	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Cocconeis</i> sp.	Bacillariophyta	Bacillariophyceae	Cocconeidales	Cocconeidaceae	<i>Cocconeis</i>	2.9	15	2	64	1.0	182.7	182.7	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Encyonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Encyonema</i>	2.9	15	2	1	1.0	2.9	2.9	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Gomphonema</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Gomphonema</i>	2.9	15	2	17	1.0	48.5	48.5	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Reimeria</i> sp.	Bacillariophyta	Bacillariophyceae	Cymbellales	Gomphonemataceae	<i>Reimeria</i>	2.9	15	2	2	1.0	5.7	5.7	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Eunotia</i> sp.	Bacillariophyta	Bacillariophyceae	Eunotiales	Eunotiaceae	<i>Eunotia</i>	2.9	15	2	7	1.0	20.0	20.0	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Odontidium</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Odontidium</i>	2.9	15	2	1	1.0	2.9	2.9	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Synedra</i> sp.	Bacillariophyta	Bacillariophyceae	Fragilariales	Fragilariaceae	<i>Synedra</i>	2.9	15	2	3	1.0	8.6	8.6	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Ulnaria ulna</i>	Bacillariophyta	Bacillariophyceae	Licmophorales	Ulnariaceae	<i>Ulnaria</i>	2.9	15	2	6	1.0	17.1	17.1	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Diatoma</i> sp.	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Diatoma</i>	2.9	15	2	3	1.0	8.6	8.6	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Meridion circulare</i>	Bacillariophyta	Bacillariophyceae	Tabellariales	Tabellariaceae	<i>Meridion</i>	2.9	15	2	10	1.0	28.5	28.5	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	Pennate diatom	Bacillariophyta	Bacillariophyceae				2.9	15	2	8	1.0	22.8	22.8	Exclude
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Chroococcus</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	2.9	15	2	2	2.0	5.7	11.4	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Stichosiphon</i> sp.	Cyanophyta	Cyanophyceae	Chroococcales	Stichosiphonaceae	<i>Stichosiphon</i>	2.9	15	2	1	1.0	2.9	2.9	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Chamaesiphon</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Chamaesiphonaceae	<i>Chamaesiphon</i>	2.9	15	2	1	18.0	2.9	51.4	ok
WQS17-QA	3	pp19-127-090_QA	6-Oct-2019	<i>Leptolyngbya</i> sp.	Cyanophyta	Cyanophyceae	Synechococcales	Leptolyngbyaceae	<i>Leptolyngbya</i>	2.9	15	2	1	12.0	2.9	34.2	ok

2017 to 2019 samples were analyzed by Biologica.

QA = quality assurance

FD = field duplicate

Appendix 10-C *Stream Periphyton QA/QC, Tenas Project,
2017 to 2019*

Appendix 10-C. Stream Periphyton QA/QC, Tenas Project, 2017 to 2019

Client Sample #	Year	Biologica Sample #	Original Density	QA Density	Percent Agreement
WQS09 Rep 2	2017	pp17-089-014	98,238	111,052	86.96
WQS12 Rep 3	2017	pp17-089-018	22,113	25,999	82.43
WQS11-US Rep3	2018	pp18-157-003	74,252	70,204	94.23
WQS-12 Rep 2	2019	pp19-127-029	5,726	6,792	81.39
WQS-11-US Rep 1	2019	pp19-127-031	2,742	2,403	87.64
WQS-09 Rep 3	2019	pp19-127-036	1,998	2,038	98.00
WQS-05 Rep 3	2019	pp19-127-042	4,681	5,451	83.54
WQS-24 Rep 3	2019	pp19-127-090	1,013	919	90.70

Notes:

Percent Agreement: $(100 - [(difference\ in\ abundance\ between\ samples) / total\ abundance\ of\ original\ sample]) * 100\%$

Appendix 10-D *Stream Benthic Invertebrates, Tenas Project,
2000 to 2019*

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Acentrella turbida</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>				4				4	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				23				23	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					5				5	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				3				3	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				7		1			8	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Claassenia sabulosa</i>	Arthropoda	Insecta	Plecoptera	Perlidae	<i>Claassenia</i>				2				2	Whole
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Clitellata indet.	Annelida	Clitellata					1						1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			3					3	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Drunella</i> grandis/spinifera group	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				3				3	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				2				2	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					25				25	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						2				2	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			1					1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Hemerodromia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Hemerodromia</i>			2					2	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					41				41	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Hydropsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Hydropsyche</i>			9					9	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Hydroptilidae indet.	Arthropoda	Insecta	Trichoptera	Hydroptilidae				17					17	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Krenosmittia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Krenosmittia</i>			1					1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	5							5	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Lebertiidae</i> indet.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae							1		1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			13					13	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Leptophlebiidae indet.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae					1				1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Microtendipes</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Microtendipes</i>			9					9	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	8							8	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			2					2	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Paratanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Paratanytarsus</i>			6					6	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Perlidae indet.	Arthropoda	Insecta	Plecoptera	Perlidae					1				1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					1				1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>			28					28	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Protzia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hydryphantidae	<i>Protzia</i>	3							3	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Pteronarcys californica</i>	Arthropoda	Insecta	Plecoptera	Pteronarcyidae	<i>Pteronarcys</i>				6				6	Whole
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Rheotanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheotanytarsus</i>			2					2	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				15				15	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Skwala</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Skwala</i>				1				1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	18							18	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Sperchonopsis</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchonopsis</i>	2							2	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	18	6						24	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				1				1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Tanytarsini</i> indet.	Arthropoda	Insecta	Diptera	Chironomidae				14					14	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Testudacarus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Torrenticolidae	<i>Testudacarus</i>	1							1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Thienemannimyia</i> group sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemannimyia</i>			2					2	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	9/100
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			2					2	9/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	2							2	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	1							1	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	2							2	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Collembola indet.	Arthropoda	Collembola	Collembola			1							1	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Pericoma/Telmatoscopus</i> sp.	Arthropoda	Insecta	Diptera	Psychodidae	<i>Pericoma/Telmatoscopus</i>			1					1	17/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS01	fb17-089-001	1	20-Sep-2017	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1					1	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			2					2	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			5					5	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				3		3			6	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				4				4	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				36				36	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					10				10	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				18				18	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					15				15	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				12				12	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				3				3	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				2				2	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				19				19	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					50				50	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					6				6	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				1				1	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					4				4	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3				3	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				13				13	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				35				35	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>				4				4	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					10				10	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				6				6	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						19				19	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Parapsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Parapsyche</i>			1					1	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				8					8	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila brunnea/vemna</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila hyalinata</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			7					7	17/100
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila vofixa</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	17/100
WQS01	fb17-089-001	1	20-Sep-2017	Trichoptera indet.	Arthropoda	Insecta	Trichoptera						2				2	17/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Pericoma/Telmatoscopus</i> sp.	Arthropoda	Insecta	Diptera	Psychodidae	<i>Pericoma/Telmatoscopus</i>			2					2	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			1					1	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			2					2	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				3				3	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				8				8	6/100
WQS02	fb17-089-002	1	19-Sep-2017	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					10				10	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				28				28	6/100
WQS02	fb17-089-002	1	19-Sep-2017	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					23				23	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				3				3	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				7				7	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				2				2	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				17				17	6/100
WQS02	fb17-089-002	1	19-Sep-2017	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					70				70	6/100
WQS02	fb17-089-002	1	19-Sep-2017	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						3				3	6/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS02	fb17-089-002	1	19-Sep-2017	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					3				3	6/100
WQS02	fb17-089-002	1	19-Sep-2017	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1				1	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				11				11	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				7				7	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				40				40	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Hesperoperla</i> sp.	Arthropoda	Insecta	Plecoptera	Perlidae	<i>Hesperoperla</i>				1				1	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>				1				1	6/100
WQS02	fb17-089-002	1	19-Sep-2017	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					9				9	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				43				43	6/100
WQS02	fb17-089-002	1	19-Sep-2017	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						9				9	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Parapsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Parapsyche</i>			1					1	6/100
WQS02	fb17-089-002	1	19-Sep-2017	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				2					2	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	6/100
WQS02	fb17-089-002	1	19-Sep-2017	<i>Rhyacophila vofixa</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			5					5	6/100
WQS02	fb17-089-002	1	19-Sep-2017	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					12					12	6/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Oreoleptis</i> sp.	Arthropoda	Insecta	Diptera	Oreoleptidae	<i>Oreoleptis</i>			1					1	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Simulium</i> sp.	Arthropoda	Insecta	Diptera	Simuliidae	<i>Simulium</i>			22					22	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			2					2	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			1					1	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Chironomini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				6				6	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Acentrella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>				1				1	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Baetis fuscatus</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				6				6	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				44				44	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Baetis vernus</i> complex	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				54				54	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae				19					19	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				8				8	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae				7					7	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				4				4	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				6				6	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				5				5	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				19				19	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae				14					14	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae				15					15	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Paraperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Paraperla</i>				11				11	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Leuctridae indet.	Arthropoda	Insecta	Plecoptera	Leuctridae				1					1	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				7				7	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				7				7	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae				1					1	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				24				24	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Plecoptera indet.	Arthropoda	Insecta	Plecoptera					4					4	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				5					5	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			8					8	22/100
WQS05	fb17-089-003	1	18-Sep-2017	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	22/100
WQS05	fb17-089-003	1	18-Sep-2017	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					3					3	22/100
WQS08	fb17-089-004	1	18-Sep-2017	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	1							1	11/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	2							2	11/100
WQS08	fb17-089-004	1	18-Sep-2017	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	12							12	11/100
WQS08	fb17-089-004	1	18-Sep-2017	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	5							5	11/100
WQS08	fb17-089-004	1	18-Sep-2017	Acari indet.	Arthropoda	Arachnida									2	2	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Amphipoda indet.	Arthropoda	Malacostraca	Amphipoda				1					1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Clinocera</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Clinocera</i>			1				1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Simulium</i> sp.	Arthropoda	Insecta	Diptera	Simuliidae	<i>Simulium</i>			5				5	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				15				15	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			14				14	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rheotanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheotanytarsus</i>			1				1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			53				53	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				25		3		28	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1				1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1			1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Baetis fuscatus</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				2			2	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				5			5	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Baetis vernus</i> complex	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				17			17	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1			1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				19			19	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Drunella grandis/spinifera</i> group	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1			1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					16			16	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				8			8	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1			1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				9			9	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					27			27	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera					3				3	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	1						1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					20			20	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Paraperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Paraperla</i>				3			3	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				1			1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3			3	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1			1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				4			4	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>				5			5	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Skwala</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Skwala</i>				2			2	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				14			14	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						9			9	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			2				2	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				3				3	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			2				2	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1				1	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rhyacophila brunnea/vemna</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2				2	11/100	
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			4				4	11/100	
WQS09	fb17-089-005	1	19-Sep-2017	Hygrobatidae indet.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae							1	1	14/100	
WQS09	fb17-089-005	1	19-Sep-2017	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	16						16	14/100	
WQS09	fb17-089-005	1	19-Sep-2017	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	9						9	14/100	
WQS09	fb17-089-005	1	19-Sep-2017	Sperchontidaeindet.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae							2	2	14/100	
WQS09	fb17-089-005	1	19-Sep-2017	Acari indet.	Arthropoda	Arachnida						1			3	4	14/100	
WQS09	fb17-089-005	1	19-Sep-2017	<i>Wiedemannia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Wiedemannia</i>			3				3	14/100	
WQS09	fb17-089-005	1	19-Sep-2017	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae						1		1	14/100	

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split
WQS09	fb17-089-005	1	19-Sep-2017	<i>Simulium</i> sp.	Arthropoda	Insecta	Diptera	Simuliidae	<i>Simulium</i>			1				1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				9				9	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			2				2	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			22				22	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			8				8	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				17		3		20	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				2				2	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1			1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				20			20	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					10			10	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1			1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1			1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				5			5	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Drunella grandis/spinifera</i> group	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1			1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					33			33	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				1			1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1			1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				2			2	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				3			3	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					8			8	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Leptophlebiidae indet.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae					1			1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						2			2	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	2						2	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1						1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae			1					1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					31			31	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Paraperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Paraperla</i>				10			10	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				1			1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					2			2	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3			3	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2			2	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3			3	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>				6			6	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					6			6	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				16			16	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						7			7	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Arctopsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Arctopsyche</i>			4				4	14/100
WQS09	fb17-089-005	1	19-Sep-2017	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				4				4	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			1				1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Ecclisomyia</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Ecclisomyia</i>			1				1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2				2	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Rhyacophila brunnea/vemna</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1				1	14/100
WQS09	fb17-089-005	1	19-Sep-2017	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			6				6	14/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1						1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	6						6	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	5						5	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Hemerodromia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Hemerodromia</i>			1				1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				4				4	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			6				6	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>			1				1	22/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS12	fb17-089-006	1	20-Sep-2017	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>								1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>								2	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Chironomini indet.	Arthropoda	Insecta	Diptera	Chironomidae									1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae									1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								5	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Acentrella turbida</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>								3	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Baetis fuscatus</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								7	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								11	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae									27	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>								5	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae									37	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>								40	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae									56	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>								1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>			1					1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	2							2	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		1	3						4	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae									13	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Paraperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Paraperla</i>								3	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>								3	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>								1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Skwala</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Skwala</i>								2	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae									1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>								42	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Plecoptera indet.	Arthropoda	Insecta	Plecoptera										9	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			6					6	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Arctopsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Arctopsyche</i>			1					1	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Hydropsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Hydropsyche</i>			3					3	22/100
WQS12	fb17-089-006	1	20-Sep-2017	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				3					3	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			4					4	22/100
WQS12	fb17-089-006	1	20-Sep-2017	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	22/100
BUL01	28549	1	22-Aug-2016	<i>Atractides</i>	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Atractides</i>								4	14/100
BUL01	28549	1	22-Aug-2016	<i>Sperchon</i>	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>								4	14/100
BUL01	28549	1	22-Aug-2016	<i>Lebertia</i>	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>								6	14/100
BUL01	28549	1	22-Aug-2016	<i>Ameletus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								8	14/100
BUL01	28549	1	22-Aug-2016	<i>Acentrella</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>								3	14/100
BUL01	28549	1	22-Aug-2016	<i>Baetis</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								65	14/100
BUL01	28549	1	22-Aug-2016	<i>Serratella</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>								3	14/100
BUL01	28549	1	22-Aug-2016	Ephemerellidae	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae									34	14/100
BUL01	28549	1	22-Aug-2016	Leptophlebiidae	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae									1	14/100
BUL01	28549	1	22-Aug-2016	<i>Rhithrogena</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>								9	14/100
BUL01	28549	1	22-Aug-2016	Heptageniidae	Arthropoda	Insecta	Ephemeroptera	Heptageniidae									39	14/100
BUL01	28549	1	22-Aug-2016	<i>Nais</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>								1	14/100
BUL01	28549	1	22-Aug-2016	Perlidae	Arthropoda	Insecta	Plecoptera	Perlidae									3	14/100
BUL01	28549	1	22-Aug-2016	<i>Claassenia sabulosa</i>	Arthropoda	Insecta	Plecoptera	Perlidae	<i>Claassenia</i>								1	14/100
BUL01	28549	1	22-Aug-2016	<i>Skwala</i>	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Skwala</i>								3	14/100
BUL01	28549	1	22-Aug-2016	Perlodidae	Arthropoda	Insecta	Plecoptera	Perlodidae									3	14/100
BUL01	28549	1	22-Aug-2016	Plecoptera	Arthropoda	Insecta	Plecoptera										1	14/100
BUL01	28549	1	22-Aug-2016	Capniidae	Arthropoda	Insecta	Plecoptera	Capniidae									4	14/100
BUL01	28549	1	22-Aug-2016	<i>Arctopsyche</i>	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Arctopsyche</i>								4	14/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
BUL01	28549	1	22-Aug-2016	<i>Arctopsyche grandis</i>	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Arctopsyche</i>								39	14/100
BUL01	28549	1	22-Aug-2016	<i>Hydropsyche</i>	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Hydropsyche</i>								16	14/100
BUL01	28549	1	22-Aug-2016	Hydropsychidae	Arthropoda	Insecta	Trichoptera	Hydropsychidae									13	14/100
BUL01	28549	1	22-Aug-2016	<i>Lepidostoma</i>	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>								7	14/100
BUL01	28549	1	22-Aug-2016	<i>Rhyacophila</i>	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>								2	14/100
BUL01	28549	1	22-Aug-2016	<i>Glossosoma</i>	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>								8	14/100
BUL01	28549	1	22-Aug-2016	<i>Neoplasta</i>	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>								1	14/100
BUL01	28549	1	22-Aug-2016	<i>Simulium</i>	Arthropoda	Insecta	Diptera	Simuliidae	<i>Simulium</i>								2	14/100
BUL01	28549	1	22-Aug-2016	<i>Brillia</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>								1	14/100
BUL01	28549	1	22-Aug-2016	<i>Tvetenia</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>								11	14/100
BUL01	28549	1	22-Aug-2016	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae									18	14/100
BUL01	28549	1	22-Aug-2016	<i>Corynoneura</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>								1	14/100
BUL01	28549	1	22-Aug-2016	<i>Eukiefferiella</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>								1	14/100
BUL01	28549	1	22-Aug-2016	<i>Heleniella</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>								1	14/100
BUL01	28549	1	22-Aug-2016	<i>Micropsectra</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra</i>								10	14/100
BUL01	28549	1	22-Aug-2016	<i>Pagastia</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pagastia</i>								1	14/100
BUL01	28549	1	22-Aug-2016	<i>Parakiefferiella</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parakiefferiella</i>								1	14/100
BUL01	28549	1	22-Aug-2016	<i>Phaenopsectra</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Phaenopsectra</i>								15	14/100
BUL01	28549	1	22-Aug-2016	<i>Rheocricotopus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>								2	14/100
BUL01	28549	1	22-Aug-2016	<i>Robackia demeijerei</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Robackia</i>								2	14/100
BUL15	3144	1	3-Sep-2000	<i>Ameletus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								6	100/100
BUL15	3144	1	3-Sep-2000	<i>Baetis</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								13	100/100
BUL15	3144	1	3-Sep-2000	Ephemerellidae	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae									5	100/100
BUL15	3144	1	3-Sep-2000	Heptageniidae	Arthropoda	Insecta	Ephemeroptera	Heptageniidae									1	100/100
BUL15	3144	1	3-Sep-2000	Chloroperlidae	Arthropoda	Insecta	Plecoptera	Chloroperlidae									7	100/100
BUL15	3144	1	3-Sep-2000	Leuctridae	Arthropoda	Insecta	Plecoptera	Leuctridae									3	100/100
BUL15	3144	1	3-Sep-2000	<i>Zapada</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>								1	100/100
BUL15	3144	1	3-Sep-2000	<i>Doroneuria</i>	Arthropoda	Insecta	Plecoptera	Perlidae	<i>Doroneuria</i>								1	100/100
BUL15	3144	1	3-Sep-2000	Perlodidae	Arthropoda	Insecta	Plecoptera	Perlodidae									6	100/100
BUL15	3144	1	3-Sep-2000	<i>Taenionema</i>	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>								2	100/100
BUL15	3144	1	3-Sep-2000	<i>Rhyacophila</i>	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>								4	100/100
BUL15	3144	1	3-Sep-2000	Brachycentridae	Arthropoda	Insecta	Trichoptera	Brachycentridae									2	100/100
BUL15	3144	1	3-Sep-2000	Arachnida	Arthropoda	Arachnida											8	100/100
BUL15	3144	1	3-Sep-2000	<i>Hemerodromia</i>	Arthropoda	Insecta	Diptera	Empididae	<i>Hemerodromia</i>								1	100/100
BUL15	3144	1	3-Sep-2000	<i>Pericoma</i>	Arthropoda	Insecta	Diptera	Psychodidae	<i>Pericoma</i>								32	100/100
BUL15	3144	1	3-Sep-2000	<i>Bezzia</i>	Arthropoda	Insecta	Diptera	Ceratopogonidae	<i>Bezzia</i>								4	100/100
BUL15	3144	1	3-Sep-2000	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae									186	100/100
BUL15	3145	2	3-Sep-2000	<i>Ameletus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								1	100/100
BUL15	3145	2	3-Sep-2000	<i>Baetis</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								38	100/100
BUL15	3145	2	3-Sep-2000	<i>Drunella</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>								7	100/100
BUL15	3145	2	3-Sep-2000	Ephemerellidae	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae									4	100/100
BUL15	3145	2	3-Sep-2000	<i>Epeorus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>								9	100/100
BUL15	3145	2	3-Sep-2000	<i>Rhithrogena</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>								15	100/100
BUL15	3145	2	3-Sep-2000	Heptageniidae	Arthropoda	Insecta	Ephemeroptera	Heptageniidae									4	100/100
BUL15	3145	2	3-Sep-2000	Chloroperlidae	Arthropoda	Insecta	Plecoptera	Chloroperlidae									5	100/100
BUL15	3145	2	3-Sep-2000	Leuctridae	Arthropoda	Insecta	Plecoptera	Leuctridae									1	100/100
BUL15	3145	2	3-Sep-2000	<i>Zapada</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>								6	100/100
BUL15	3145	2	3-Sep-2000	<i>Skwala</i>	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Skwala</i>								2	100/100
BUL15	3145	2	3-Sep-2000	<i>Taenionema</i>	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>								44	100/100
BUL15	3145	2	3-Sep-2000	Plecoptera	Arthropoda	Insecta	Plecoptera										1	100/100

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Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
BUL15	3145	2	3-Sep-2000	Capniidae	Arthropoda	Insecta	Plecoptera	Capniidae									9	100/100
BUL15	3145	2	3-Sep-2000	Parapsyche	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Parapsyche								4	100/100
BUL15	3145	2	3-Sep-2000	Limnephilidae	Arthropoda	Insecta	Trichoptera	Limnephilidae									2	100/100
BUL15	3145	2	3-Sep-2000	Rhyacophila	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila								3	100/100
BUL15	3145	2	3-Sep-2000	Brachycentridae	Arthropoda	Insecta	Trichoptera	Brachycentridae									2	100/100
BUL15	3145	2	3-Sep-2000	Glossosoma	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Glossosoma								15	100/100
BUL15	3145	2	3-Sep-2000	Arachnida	Arthropoda	Arachnida											6	100/100
BUL15	3145	2	3-Sep-2000	Empididae	Arthropoda	Insecta	Diptera	Empididae									2	100/100
BUL15	3145	2	3-Sep-2000	Pericoma	Arthropoda	Insecta	Diptera	Psychodidae	Pericoma								10	100/100
BUL15	3145	2	3-Sep-2000	Bezzia	Arthropoda	Insecta	Diptera	Ceratopogonidae	Bezzia								1	100/100
BUL15	3145	2	3-Sep-2000	Antocha	Arthropoda	Insecta	Diptera	Tipulidae	Antocha								2	100/100
BUL15	3145	2	3-Sep-2000	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae									52	100/100
BUL15	3145	2	3-Sep-2000	Turbellaria	Platyhelminthes	Turbellaria											2	100/100
BUL15	3146	3	3-Sep-2000	Collembola	Arthropoda	Collembola	Collembola										1	100/100
BUL15	3146	3	3-Sep-2000	Baetis	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis								3	100/100
BUL15	3146	3	3-Sep-2000	Baetidae	Arthropoda	Insecta	Ephemeroptera	Baetidae									38	100/100
BUL15	3146	3	3-Sep-2000	Drunella	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella								3	100/100
BUL15	3146	3	3-Sep-2000	Cinygmula	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Cinygmula								1	100/100
BUL15	3146	3	3-Sep-2000	Epeorus	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus								7	100/100
BUL15	3146	3	3-Sep-2000	Rhithrogena	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Rhithrogena								8	100/100
BUL15	3146	3	3-Sep-2000	Heptageniidae	Arthropoda	Insecta	Ephemeroptera	Heptageniidae									6	100/100
BUL15	3146	3	3-Sep-2000	Leuctridae	Arthropoda	Insecta	Plecoptera	Leuctridae									1	100/100
BUL15	3146	3	3-Sep-2000	Zapada	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada								6	100/100
BUL15	3146	3	3-Sep-2000	Taenionema	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Taenionema								32	100/100
BUL15	3146	3	3-Sep-2000	Plecoptera	Arthropoda	Insecta	Plecoptera										10	100/100
BUL15	3146	3	3-Sep-2000	Trichoptera	Arthropoda	Insecta	Trichoptera										1	100/100
BUL15	3146	3	3-Sep-2000	Glossosoma	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Glossosoma								3	100/100
BUL15	3146	3	3-Sep-2000	Arachnida	Arthropoda	Arachnida											1	100/100
BUL15	3146	3	3-Sep-2000	Pericoma	Arthropoda	Insecta	Diptera	Psychodidae	Pericoma								13	100/100
BUL15	3146	3	3-Sep-2000	Tipulidae	Arthropoda	Insecta	Diptera	Tipulidae									1	100/100
BUL15	3146	3	3-Sep-2000	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae									39	100/100
BUL15	9920	1	23-Aug-2006	Sperchon	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	Sperchon								42	100/100
BUL15	9920	1	23-Aug-2006	Lebertia	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	Lebertia								57	100/100
BUL15	9920	1	23-Aug-2006	Ameletus	Arthropoda	Insecta	Ephemeroptera	Ameletidae	Ameletus								1	100/100
BUL15	9920	1	23-Aug-2006	Baetis	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis								247	100/100
BUL15	9920	1	23-Aug-2006	Drunella coloradensis	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella								10	100/100
BUL15	9920	1	23-Aug-2006	Drunella doddsii	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella								18	100/100
BUL15	9920	1	23-Aug-2006	Serratella	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Serratella								1	100/100
BUL15	9920	1	23-Aug-2006	Paraleptophlebia	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Paraleptophlebia								73	100/100
BUL15	9920	1	23-Aug-2006	Cinygmula	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Cinygmula								19	100/100
BUL15	9920	1	23-Aug-2006	Epeorus deceptivus	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus								70	100/100
BUL15	9920	1	23-Aug-2006	Epeorus longimanus	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus								32	100/100
BUL15	9920	1	23-Aug-2006	Rhithrogena	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Rhithrogena								77	100/100
BUL15	9920	1	23-Aug-2006	Sweltsa	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Sweltsa								8	100/100
BUL15	9920	1	23-Aug-2006	Chloroperlidae	Arthropoda	Insecta	Plecoptera	Chloroperlidae									8	100/100
BUL15	9920	1	23-Aug-2006	Suwallia	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Suwallia								2	100/100
BUL15	9920	1	23-Aug-2006	Despaxia	Arthropoda	Insecta	Plecoptera	Leuctridae	Despaxia								8	100/100
BUL15	9920	1	23-Aug-2006	Zapada	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada								133	100/100
BUL15	9920	1	23-Aug-2006	Kogotus	Arthropoda	Insecta	Plecoptera	Perlodidae	Kogotus								2	100/100
BUL15	9920	1	23-Aug-2006	Taeniopterygidae	Arthropoda	Insecta	Plecoptera	Taeniopterygidae									26	100/100

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Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
BUL15	9920	1	23-Aug-2006	Capniidae	Arthropoda	Insecta	Plecoptera	Capniidae									26	100/100
BUL15	9920	1	23-Aug-2006	Arctopsyche	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Arctopsyche								1	100/100
BUL15	9920	1	23-Aug-2006	Rhyacophila	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila								58	100/100
BUL15	9920	1	23-Aug-2006	Amiocentrus	Arthropoda	Insecta	Trichoptera	Brachycentridae	Amiocentrus								65	100/100
BUL15	9920	1	23-Aug-2006	Chelifera	Arthropoda	Insecta	Diptera	Empididae	Chelifera								1	100/100
BUL15	9920	1	23-Aug-2006	Pericoma	Arthropoda	Insecta	Diptera	Psychodidae	Pericoma								384	100/100
BUL15	9920	1	23-Aug-2006	Simulium	Arthropoda	Insecta	Diptera	Simuliidae	Simulium								57	100/100
BUL15	9920	1	23-Aug-2006	Bezzia/Palpomyia	Arthropoda	Insecta	Diptera	Ceratopogonidae	Bezzia/Palpomyia								8	100/100
BUL15	9920	1	23-Aug-2006	Antocha	Arthropoda	Insecta	Diptera	Tipulidae	Antocha								1	100/100
BUL15	9920	1	23-Aug-2006	Rhabdomastix	Arthropoda	Insecta	Diptera	Tipulidae	Rhabdomastix								8	100/100
BUL15	9920	1	23-Aug-2006	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae									426	100/100
BUL15	9920	1	23-Aug-2006	Polycelis	Platyhelminthes	Turbellaria	Tricladida	Planariidae	Polycelis								28	100/100
BUL15	9920	1	23-Aug-2006	Ostracoda	Arthropoda	Ostracoda											16	100/100
BUL16	2534	1	3-Sep-2004	Baetis	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis								234	100/100
BUL16	2534	1	3-Sep-2004	Drunella doddsii	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella								18	100/100
BUL16	2534	1	3-Sep-2004	Ephemerellidae	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae									12	100/100
BUL16	2534	1	3-Sep-2004	Paraleptophlebia	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	Paraleptophlebia								18	100/100
BUL16	2534	1	3-Sep-2004	Cinygmula	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Cinygmula								2	100/100
BUL16	2534	1	3-Sep-2004	Epeorus	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus								24	100/100
BUL16	2534	1	3-Sep-2004	Rhithrogena	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Rhithrogena								32	100/100
BUL16	2534	1	3-Sep-2004	Heptageniidae	Arthropoda	Insecta	Ephemeroptera	Heptageniidae									78	100/100
BUL16	2534	1	3-Sep-2004	Chloroperlidae	Arthropoda	Insecta	Plecoptera	Chloroperlidae									16	100/100
BUL16	2534	1	3-Sep-2004	Suwallia	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Suwallia								2	100/100
BUL16	2534	1	3-Sep-2004	Zapada	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada								12	100/100
BUL16	2534	1	3-Sep-2004	Taeniopterygidae	Arthropoda	Insecta	Plecoptera	Taeniopterygidae									40	100/100
BUL16	2534	1	3-Sep-2004	Capniidae	Arthropoda	Insecta	Plecoptera	Capniidae									10	100/100
BUL16	2534	1	3-Sep-2004	Hydropsychidae	Arthropoda	Insecta	Trichoptera	Hydropsychidae									4	100/100
BUL16	2534	1	3-Sep-2004	Rhyacophila	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila								16	100/100
BUL16	2534	1	3-Sep-2004	Glossosoma	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Glossosoma								2	100/100
BUL16	2534	1	3-Sep-2004	Arachnida	Arthropoda	Arachnida											14	100/100
BUL16	2534	1	3-Sep-2004	Oreogeton	Arthropoda	Insecta	Diptera	Empididae	Oreogeton								2	100/100
BUL16	2534	1	3-Sep-2004	Pericoma	Arthropoda	Insecta	Diptera	Psychodidae	Pericoma								4	100/100
BUL16	2534	1	3-Sep-2004	Bezzia	Arthropoda	Insecta	Diptera	Ceratopogonidae	Bezzia								6	100/100
BUL16	2534	1	3-Sep-2004	Antocha	Arthropoda	Insecta	Diptera	Tipulidae	Antocha								4	100/100
BUL16	2534	1	3-Sep-2004	Tipula	Arthropoda	Insecta	Diptera	Tipulidae	Tipula								2	100/100
BUL16	2534	1	3-Sep-2004	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae									166	100/100
BUL16	2534	1	3-Sep-2004	Polycelis	Platyhelminthes	Turbellaria	Tricladida	Planariidae	Polycelis								12	100/100
BUL16	3084	1	3-Sep-2000	Baetis	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis								14	100/100
BUL16	3084	1	3-Sep-2000	Drunella	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella								2	100/100
BUL16	3084	1	3-Sep-2000	Epeorus	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus								2	100/100
BUL16	3084	1	3-Sep-2000	Heptageniidae	Arthropoda	Insecta	Ephemeroptera	Heptageniidae									9	100/100
BUL16	3084	1	3-Sep-2000	Suwallia	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Suwallia								3	100/100
BUL16	3084	1	3-Sep-2000	Zapada	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada								2	100/100
BUL16	3084	1	3-Sep-2000	Taeniopterygidae	Arthropoda	Insecta	Plecoptera	Taeniopterygidae									2	100/100
BUL16	3084	1	3-Sep-2000	Plecoptera	Arthropoda	Insecta	Plecoptera										16	100/100
BUL16	3084	1	3-Sep-2000	Rhyacophila	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila								3	100/100
BUL16	3084	1	3-Sep-2000	Trichoptera	Arthropoda	Insecta	Trichoptera										1	100/100
BUL16	3084	1	3-Sep-2000	Arachnida	Arthropoda	Arachnida											6	100/100
BUL16	3084	1	3-Sep-2000	Deuterophlebia	Arthropoda	Insecta	Diptera	Deuterophlebiidae	Deuterophlebia								2	100/100
BUL16	3084	1	3-Sep-2000	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae									53	100/100

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Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
BUL16	3084	1	3-Sep-2000	Turbellaria	Platyhelminthes	Turbellaria											4	100/100
BUL16	3085	2	3-Sep-2000	<i>Ameletus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								3	100/100
BUL16	3085	2	3-Sep-2000	<i>Baetis</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								28	100/100
BUL16	3085	2	3-Sep-2000	<i>Drunella</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>								4	100/100
BUL16	3085	2	3-Sep-2000	<i>Serratella</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>								1	100/100
BUL16	3085	2	3-Sep-2000	Ephemerellidae	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae									3	100/100
BUL16	3085	2	3-Sep-2000	<i>Paraleptophlebia</i>	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Paraleptophlebia</i>								4	100/100
BUL16	3085	2	3-Sep-2000	<i>Epeorus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>								4	100/100
BUL16	3085	2	3-Sep-2000	<i>Rhithrogena</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>								8	100/100
BUL16	3085	2	3-Sep-2000	Chloroperlidae	Arthropoda	Insecta	Plecoptera	Chloroperlidae									2	100/100
BUL16	3085	2	3-Sep-2000	Leuctridae	Arthropoda	Insecta	Plecoptera	Leuctridae									6	100/100
BUL16	3085	2	3-Sep-2000	<i>Zapada</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>								2	100/100
BUL16	3085	2	3-Sep-2000	<i>Taenionema</i>	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>								2	100/100
BUL16	3085	2	3-Sep-2000	Plecoptera	Arthropoda	Insecta	Plecoptera										7	100/100
BUL16	3085	2	3-Sep-2000	Hydropsychidae	Arthropoda	Insecta	Trichoptera	Hydropsychidae									1	100/100
BUL16	3085	2	3-Sep-2000	<i>Glossosoma</i>	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>								1	100/100
BUL16	3085	2	3-Sep-2000	Arachnida	Arthropoda	Arachnida											5	100/100
BUL16	3085	2	3-Sep-2000	<i>Pericoma</i>	Arthropoda	Insecta	Diptera	Psychodidae	<i>Pericoma</i>								3	100/100
BUL16	3085	2	3-Sep-2000	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae									47	100/100
BUL16	3085	2	3-Sep-2000	Turbellaria	Platyhelminthes	Turbellaria											6	100/100
BUL16	3085	2	3-Sep-2000	Arthropoda	Arthropoda												1	100/100
BUL16	3086	3	3-Sep-2000	<i>Baetis</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								7	100/100
BUL16	3086	3	3-Sep-2000	<i>Drunella</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>								3	100/100
BUL16	3086	3	3-Sep-2000	Ephemeroptera	Arthropoda	Insecta	Ephemeroptera										8	100/100
BUL16	3086	3	3-Sep-2000	<i>Epeorus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>								2	100/100
BUL16	3086	3	3-Sep-2000	<i>Rhithrogena</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>								3	100/100
BUL16	3086	3	3-Sep-2000	Heptageniidae	Arthropoda	Insecta	Ephemeroptera	Heptageniidae									11	100/100
BUL16	3086	3	3-Sep-2000	<i>Sweltsa</i>	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>								5	100/100
BUL16	3086	3	3-Sep-2000	Leuctridae	Arthropoda	Insecta	Plecoptera	Leuctridae									2	100/100
BUL16	3086	3	3-Sep-2000	<i>Zapada</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>								2	100/100
BUL16	3086	3	3-Sep-2000	Taeniopterygidae	Arthropoda	Insecta	Plecoptera	Taeniopterygidae									7	100/100
BUL16	3086	3	3-Sep-2000	Plecoptera	Arthropoda	Insecta	Plecoptera										7	100/100
BUL16	3086	3	3-Sep-2000	<i>Rhyacophila</i>	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>								1	100/100
BUL16	3086	3	3-Sep-2000	Psychodidae	Arthropoda	Insecta	Diptera	Psychodidae									1	100/100
BUL16	3086	3	3-Sep-2000	<i>Deuterophlebia</i>	Arthropoda	Insecta	Diptera	Deuterophlebiidae	<i>Deuterophlebia</i>								1	100/100
BUL16	3086	3	3-Sep-2000	Turbellaria	Platyhelminthes	Turbellaria											3	100/100
BUL16	3086	3	3-Sep-2000	Arthropoda	Arthropoda												1	100/100
BUL16	3086	3	3-Sep-2000	Clitellata	Annelida	Clitellata											2	100/100
BUL16	9923	1	23-Aug-2006	<i>Hygrobates</i>	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>								8	100/100
BUL16	9923	1	23-Aug-2006	<i>Sperchon</i>	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>								28	100/100
BUL16	9923	1	23-Aug-2006	<i>Wandesia</i>	Arthropoda	Arachnida	Trombidiformes	Hydryphantidae	<i>Wandesia</i>								3	100/100
BUL16	9923	1	23-Aug-2006	<i>Lebertia</i>	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>								36	100/100
BUL16	9923	1	23-Aug-2006	<i>Ameletus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								31	100/100
BUL16	9923	1	23-Aug-2006	<i>Acentrella</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>								5	100/100
BUL16	9923	1	23-Aug-2006	<i>Baetis</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								98	100/100
BUL16	9923	1	23-Aug-2006	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>								3	100/100
BUL16	9923	1	23-Aug-2006	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>								15	100/100
BUL16	9923	1	23-Aug-2006	<i>Serratella</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>								1	100/100
BUL16	9923	1	23-Aug-2006	<i>Ephemerella</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Ephemerella</i>								8	100/100
BUL16	9923	1	23-Aug-2006	<i>Paraleptophlebia</i>	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Paraleptophlebia</i>								1	100/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split
BUL16	9923	1	23-Aug-2006	<i>Cinygmula</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>							56	100/100
BUL16	9923	1	23-Aug-2006	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>							8	100/100
BUL16	9923	1	23-Aug-2006	<i>Rhithrogena</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>							11	100/100
BUL16	9923	1	23-Aug-2006	Heptageniidae	Arthropoda	Insecta	Ephemeroptera	Heptageniidae								72	100/100
BUL16	9923	1	23-Aug-2006	Enchytraeidae	Annelida	Clitellata		Enchytraeidae								3	100/100
BUL16	9923	1	23-Aug-2006	<i>Suwallia</i>	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Suwallia</i>							19	100/100
BUL16	9923	1	23-Aug-2006	<i>Despaxia</i>	Arthropoda	Insecta	Plecoptera	Leuctridae	<i>Despaxia</i>							4	100/100
BUL16	9923	1	23-Aug-2006	<i>Zapada</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>							5	100/100
BUL16	9923	1	23-Aug-2006	Perlodidae	Arthropoda	Insecta	Plecoptera	Perlodidae								1	100/100
BUL16	9923	1	23-Aug-2006	<i>Kogotus</i>	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Kogotus</i>							2	100/100
BUL16	9923	1	23-Aug-2006	Capniidae	Arthropoda	Insecta	Plecoptera	Capniidae								10	100/100
BUL16	9923	1	23-Aug-2006	<i>Parapsyche</i>	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Parapsyche</i>							1	100/100
BUL16	9923	1	23-Aug-2006	<i>Rhyacophila</i>	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>							20	100/100
BUL16	9923	1	23-Aug-2006	Trichoptera	Arthropoda	Insecta	Trichoptera									1	100/100
BUL16	9923	1	23-Aug-2006	<i>Amiocentrus</i>	Arthropoda	Insecta	Trichoptera	Brachycentridae	<i>Amiocentrus</i>							11	100/100
BUL16	9923	1	23-Aug-2006	<i>Glossosoma</i>	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>							5	100/100
BUL16	9923	1	23-Aug-2006	<i>Chelifera</i>	Arthropoda	Insecta	Diptera	Empididae	<i>Chelifera</i>							5	100/100
BUL16	9923	1	23-Aug-2006	<i>Pericoma</i>	Arthropoda	Insecta	Diptera	Psychodidae	<i>Pericoma</i>							11	100/100
BUL16	9923	1	23-Aug-2006	<i>Bezzia/Palpomyia</i>	Arthropoda	Insecta	Diptera	Ceratopogonidae	<i>Bezzia/Palpomyia</i>							4	100/100
BUL16	9923	1	23-Aug-2006	<i>Antocha</i>	Arthropoda	Insecta	Diptera	Tipulidae	<i>Antocha</i>							5	100/100
BUL16	9923	1	23-Aug-2006	<i>Rhabdomastix</i>	Arthropoda	Insecta	Diptera	Tipulidae	<i>Rhabdomastix</i>							1	100/100
BUL16	9923	1	23-Aug-2006	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae								168	100/100
BUL16	9923	1	23-Aug-2006	<i>Polycelis</i>	Platyhelminthes	Turbellaria	Tricladida	Planariidae	<i>Polycelis</i>							5	100/100
BUL16	9923	1	23-Aug-2006	Ostracoda	Arthropoda	Ostracoda										5	100/100
BUL16	9923	1	23-Aug-2006	<i>Heterlimnius</i>	Arthropoda	Insecta	Coleoptera	Elmidae	<i>Heterlimnius</i>							1	100/100
BUL73	13002	1	26-Sep-2007	<i>Sperchon</i>	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>							88	100/100
BUL73	13002	1	26-Sep-2007	<i>Lebertia</i>	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>							10	100/100
BUL73	13002	1	26-Sep-2007	<i>Acentrella</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>							8	100/100
BUL73	13002	1	26-Sep-2007	<i>Baetis bicaudatus</i>	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>							12	100/100
BUL73	13002	1	26-Sep-2007	Ephemerellidae	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae								360	100/100
BUL73	13002	1	26-Sep-2007	<i>Paraleptophlebia</i>	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Paraleptophlebia</i>							8	100/100
BUL73	13002	1	26-Sep-2007	<i>Rhithrogena</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>							134	100/100
BUL73	13002	1	26-Sep-2007	Heptageniidae	Arthropoda	Insecta	Ephemeroptera	Heptageniidae								32	100/100
BUL73	13002	1	26-Sep-2007	<i>Sweltsa</i>	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>							2	100/100
BUL73	13002	1	26-Sep-2007	Chloroperlidae	Arthropoda	Insecta	Plecoptera	Chloroperlidae								8	100/100
BUL73	13002	1	26-Sep-2007	<i>Suwallia</i>	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Suwallia</i>							2	100/100
BUL73	13002	1	26-Sep-2007	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>							4	100/100
BUL73	13002	1	26-Sep-2007	Perlidae	Arthropoda	Insecta	Plecoptera	Perlidae								2	100/100
BUL73	13002	1	26-Sep-2007	Perlodidae	Arthropoda	Insecta	Plecoptera	Perlodidae								18	100/100
BUL73	13002	1	26-Sep-2007	<i>Taenionema</i>	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>							150	100/100
BUL73	13002	1	26-Sep-2007	Capniidae	Arthropoda	Insecta	Plecoptera	Capniidae								98	100/100
BUL73	13002	1	26-Sep-2007	<i>Yoraperla</i>	Arthropoda	Insecta	Plecoptera	Peltopterlidae	<i>Yoraperla</i>							8	100/100
BUL73	13002	1	26-Sep-2007	<i>Pteronarcys</i>	Arthropoda	Insecta	Plecoptera	Pteronarcyidae	<i>Pteronarcys</i>							8	100/100
BUL73	13002	1	26-Sep-2007	<i>Arctopsyche</i>	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Arctopsyche</i>							176	100/100
BUL73	13002	1	26-Sep-2007	<i>Hydropsyche</i>	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Hydropsyche</i>							164	100/100
BUL73	13002	1	26-Sep-2007	Hydropsychidae	Arthropoda	Insecta	Trichoptera	Hydropsychidae								590	100/100
BUL73	13002	1	26-Sep-2007	Limnephilidae	Arthropoda	Insecta	Trichoptera	Limnephilidae								8	100/100
BUL73	13002	1	26-Sep-2007	<i>Glossosoma</i>	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>							8	100/100
BUL73	13002	1	26-Sep-2007	<i>Hemerodromia</i>	Arthropoda	Insecta	Diptera	Empididae	<i>Hemerodromia</i>							2	100/100
BUL73	13002	1	26-Sep-2007	<i>Chelifera/Metachela</i>	Arthropoda	Insecta	Diptera	Empididae	<i>Chelifera/Metachela</i>							10	100/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split
BUL73	13002	1	26-Sep-2007	<i>Prosimulium</i>	Arthropoda	Insecta	Diptera	Simuliidae	<i>Prosimulium</i>							52	100/100
BUL73	13002	1	26-Sep-2007	<i>Agathon</i>	Arthropoda	Insecta	Diptera	Blephariceridae	<i>Agathon</i>							2	100/100
BUL73	13002	1	26-Sep-2007	<i>Hexatoma</i>	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>							4	100/100
BUL73	13002	1	26-Sep-2007	Chironomidae	Arthropoda	Insecta	Diptera	Chironomidae								182	100/100
BUL73	13002	1	26-Sep-2007	Clitellata	Annelida	Clitellata										94	100/100
WQS01	fb19-127-022	1	25-Aug-2019	Insecta indet. (terrestrial)	Arthropoda	Insecta				1						1	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	5						5	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	6						6	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Entomobryidae indet.	Arthropoda	Collembola	Collembola	Entomobryidae		1						1	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Micropsectra</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra</i>			4				4	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			4				4	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Pagastia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pagastia</i>			4				4	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Diamesinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1				1	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			29				29	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			7				7	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>			3				3	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1				1	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Parorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parorthocladius</i>			1				1	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			1				1	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			21				21	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				20		9		29	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			4				4	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				2				2	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			4				4	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					19			19	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				20			20	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				13			13	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				8			8	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				4			4	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae				21				21	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				2			2	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				12			12	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1			1	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae				17				17	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				5			5	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae				6				6	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Visoka cataractae</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Visoka</i>				2			2	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3			3	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3			3	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				9			9	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae				4				4	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				15			15	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			4				4	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				6				6	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			3				3	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Rhyacophila brunnea/vemna</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1				1	14/100
WQS01	fb19-127-022	1	25-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			4				4	14/100
WQS01	fb19-127-022	1	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					2				2	14/100
WQS01	fb19-127-023	2	25-Aug-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		1						1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	18						18	29/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS01	fb19-127-023	2	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	2							2	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	5							5	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				7					7	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			11					11	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Pagastia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pagastia</i>			3					3	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Pseudodiamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pseudodiamesa</i>			1					1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			1					1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>			2					2	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			17					17	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			15					15	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>			25					25	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Parorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parorthocladius</i>			4					4	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			1					1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			2					2	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			18					18	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				20					20	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			1					1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				2					2	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			2					2	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1				1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				11				11	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				17				17	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				5				5	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1				1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae				50					50	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>			2					2	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				8				8	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae				16					16	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>			3					3	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera					2					2	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae				14					14	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				4				4	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				12				12	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae				4					4	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				1				1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						1				1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				2					2	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			4					4	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhyacophila vagrita</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhyacophila vofixa</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	29/100
WQS01	fb19-127-023	2	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					1							1	29/100
WQS01	fb19-127-024	3	25-Aug-2019	Nematoda indet.	Nematoda					2							2	17/100
WQS01	fb19-127-024	3	25-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	1							1	17/100
WQS01	fb19-127-024	3	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	22							22	17/100
WQS01	fb19-127-024	3	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	9							9	17/100
WQS01	fb19-127-024	3	25-Aug-2019	<i>Micropsectra/Tanytarsus</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra/Tanytarsus</i>				1				1	17/100
WQS01	fb19-127-024	3	25-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>				6				6	17/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS01	fb19-127-024	3	25-Aug-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				8					8	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Tanytarsus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsus			19					19	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Pagastia sp.	Arthropoda	Insecta	Diptera	Chironomidae	Pagastia			1					1	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Cricotopus/Orthocladius sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	Cricotopus/Orthocladius			51					51	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Eukiefferiella sp.	Arthropoda	Insecta	Diptera	Chironomidae	Eukiefferiella			11					11	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Hydrobaenus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Hydrobaenus			33					33	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				2					2	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Parorthocladius sp.	Arthropoda	Insecta	Diptera	Chironomidae	Parorthocladius			3					3	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Tvetenia sp.	Arthropoda	Insecta	Diptera	Chironomidae	Tvetenia			23					23	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				14		9			23	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				4					4	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Dicranota sp.	Arthropoda	Insecta	Diptera	Tipulidae	Dicranota			5					5	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Ameletus sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	Ameletus				4				4	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					29				29	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Baetis sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis				43				43	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Drunella doddsii	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella				3				3	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Drunella coloradensis	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella				2				2	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					40				40	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Serratella sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Serratella				1				1	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Cinygmula sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Cinygmula				2				2	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Epeorus deceptivus	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus				2				2	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					20				20	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Rhithrogena sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Rhithrogena				7				7	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Leptophlebiidae indet.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae					1				1	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					5				5	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Haploperla sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Haploperla				1				1	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Leuctridae indet.	Arthropoda	Insecta	Plecoptera	Leuctridae					2				2	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Nemourinae indet.	Arthropoda	Insecta	Plecoptera	Nemouridae					16				16	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Zapada cinctipes	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada				2				2	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Zapada oregonensis group	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada				2				2	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Taenionema sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Taenionema				6				6	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						4				4	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Glossosoma sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Glossosoma			1					1	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				3					3	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Rhyacophila atrata complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			1					1	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Rhyacophila hyalinata group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			1					1	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Rhyacophila sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			5					5	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Rhyacophila vetina complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			2					2	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Rhyacophila vofixa group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			3					3	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					3					3	17/100
WQS01	fb19-127-024	3	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					1							1	17/100
WQS02	fb19-127-019	1	25-Aug-2019	Lebertia sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	Lebertia	1							1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Sperchon sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	Sperchon	1							1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Acari indet.	Arthropoda	Arachnida									1		1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Micropsectra sp.	Arthropoda	Insecta	Diptera	Chironomidae	Micropsectra			5					5	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Stempellinella sp.	Arthropoda	Insecta	Diptera	Chironomidae	Stempellinella			4					4	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Tanytarsus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsus			7					7	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Pseudodiamesa sp.	Arthropoda	Insecta	Diptera	Chironomidae	Pseudodiamesa			1					1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Brillia sp.	Arthropoda	Insecta	Diptera	Chironomidae	Brillia			2					2	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Corynoneura sp.	Arthropoda	Insecta	Diptera	Chironomidae	Corynoneura			1					1	16/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS02	fb19-127-019	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			13					13	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			3					3	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>			6					6	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				5					5	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			34					34	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			5					5	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				17					17	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			2					2	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				8					8	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Hexatoma</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>			1					1	Whole
WQS02	fb19-127-019	1	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				11				11	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				4				4	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				38				38	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					32				32	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1				1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				2				2	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1				1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					1				1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				1				1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					6				6	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					2				2	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				27				27	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				26				26	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					7				7	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				16				16	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						10				10	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhyacophila brunnea/vemna</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhyacophila vofixa</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					3					3	16/100
WQS02	fb19-127-019	1	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					1							1	16/100
WQS02	fb19-127-020	2	25-Aug-2019	Nematoda indet.	Nematoda					1							1	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Protzia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hydryphantidae	<i>Protzia</i>	1							1	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	2							2	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	10							10	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Micropsectra</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra</i>			8					8	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			5					5	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			6					6	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Pagastia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pagastia</i>			1					1	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			4					4	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>			1					1	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			32					32	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>			4					4	17/100
WQS02	fb19-127-020	2	25-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Psectrocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Psectrocladius</i>			1					1	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			1					1	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			18					18	17/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split		
WQS02	fb19-127-020	2	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae									14	14	17/100
WQS02	fb19-127-020	2	25-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			2					2	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				10					10	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1					1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Hexatoma</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>			1					1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			2					2	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Diptera indet.	Arthropoda	Insecta	Diptera							1			1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				8				8	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					10				10	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				8				8	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				46				46	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				3				3	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Drunella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1				1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					28				28	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1				1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				1				1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				2				2	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					8				8	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Leptophlebiidae indet.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae					2				2	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				1				1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					5				5	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1				1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Leuctridae indet.	Arthropoda	Insecta	Plecoptera	Leuctridae					1				1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				31				31	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				6				6	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				14				14	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					10				10	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				15				15	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						1				1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	<i>Rhyacophila vofixa</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	17/100	
WQS02	fb19-127-020	2	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					1							1	17/100	
WQS02	fb19-127-021	3	25-Aug-2019	Egg/egg mass	Unknown					3							3	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	Oribatida indet.	Arthropoda	Arachnida	Sarcoptiformes			1							1	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	2							2	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	2							2	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	3							3	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				3					3	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			23					23	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			2					2	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>			2					2	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			14					14	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			7					7	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				5					5	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			6					6	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			6					6	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae						8			8	10/100	
WQS02	fb19-127-021	3	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				8					8	10/100	

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split
WQS02	fb19-127-021	3	25-Aug-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			3				3	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				4			4	10/100
WQS02	fb19-127-021	3	25-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					1			1	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				9			9	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				61			61	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				6			6	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2			2	10/100
WQS02	fb19-127-021	3	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					24			24	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				1			1	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				5			5	10/100
WQS02	fb19-127-021	3	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					11			11	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				12			12	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				1			1	10/100
WQS02	fb19-127-021	3	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					16			16	10/100
WQS02	fb19-127-021	3	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					3			3	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				22			22	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1			1	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2			2	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				15			15	10/100
WQS02	fb19-127-021	3	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					9			9	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				15			15	10/100
WQS02	fb19-127-021	3	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1				1	10/100
WQS02	fb19-127-021	3	25-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2				2	10/100
WQS02	fb19-127-021	3	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					6				6	10/100
WQS02	fb19-127-021	3	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					1						1	10/100
WQS04B	fb19-127-016	1	27-Aug-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		1						1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Atractides</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Atractides</i>	2						2	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	2						2	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	5						5	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Micropsectra/Tanytarsus</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra/Tanytarsus</i>			1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Paratanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Paratanytarsus</i>			2				2	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			3				3	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			14				14	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			2				2	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>			1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			26				26	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			3				3	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>			1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				6				6	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Parorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parorthocladius</i>			1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			14				14	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			10				10	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				4		5		9	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Wiedemannia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Wiedemannia</i>			1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				7				7	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae							1	1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				18			18	33/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				19				19	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				17				17	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				53				53	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					2				2	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					13				13	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				17				17	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				3				3	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					27				27	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Suwallia</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Suwallia</i>				3				3	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					2				2	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Paraleuctra</i> sp.	Arthropoda	Insecta	Plecoptera	Leuctridae	<i>Paraleuctra</i>				1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				21				21	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					3				3	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				3				3	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						1				1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Brachycentrus</i> sp.	Arthropoda	Insecta	Trichoptera	Brachycentridae	<i>Brachycentrus</i>			1					1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Ecclisomyia</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Ecclisomyia</i>			1					1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Rhyacophila vofixa</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	33/100
WQS04B	fb19-127-016	1	27-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					5					5	33/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Acari indet. (terrestrial)	Arthropoda	Arachnida				1							1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Insecta indet. (terrestrial)	Arthropoda	Insecta				1							1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Nais communis</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1							1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Atractides</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Atractides</i>	1							1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	8							8	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	6							6	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Acari indet.	Arthropoda	Arachnida									3		3	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Micropsectra</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra</i>			2					2	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			5					5	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			2					2	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			2					2	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>			1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			20					20	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			10					10	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Orthocladiiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				5					5	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			3					3	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				9					9	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Wiedemannia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Wiedemannia</i>			1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae				1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae				2					2	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				3				3	25/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1				1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Acentrella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>				2				2	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				29				29	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				117				117	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1				1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					9				9	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				4				4	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				3				3	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				6				6	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					3				3	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				33				33	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				4				4	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					2				2	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Suwallia</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Suwallia</i>				1				1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1				1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Visoka cataractae</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Visoka</i>				1				1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					4				4	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				3				3	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Amiocentrus</i> sp.	Arthropoda	Insecta	Trichoptera	Brachycentridae	<i>Amiocentrus</i>			2					2	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				3					3	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1		2			3	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	25/100
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					3							3	25/100
WQS04B	fb19-127-017	2	27-Aug-2019	Egg/egg mass	Unknown					2							2	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Nais communis</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1							1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae			1						1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	4							4	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	5							5	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Acari indet.	Arthropoda	Arachnida									2		2	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				2					2	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>				1				1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>				15				15	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>				3				3	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>				8				8	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>				3				3	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>				7				7	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				17		2			19	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>				1				1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				8					8	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Simulium</i> sp.	Arthropoda	Insecta	Diptera	Simuliidae	<i>Simulium</i>				11				11	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				5					5	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				13				13	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				26				26	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				88				88	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	31/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				2				2	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				5				5	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Epeorus longimanus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1				1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					4				4	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				3				3	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				3				3	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						2				2	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					20				20	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Leuctridae indet.	Arthropoda	Insecta	Plecoptera	Leuctridae					1				1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				23				23	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					2				2	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				9				9	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						1				1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Amiocentrus</i> sp.	Arthropoda	Insecta	Trichoptera	Brachycentridae	<i>Amiocentrus</i>			6					6	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			3					3	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhyacophila brunnea/vemna</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhyacophila nevadensis</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>					1			1	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					2					2	31/100
WQS04B	fb19-127-017	2	27-Aug-2019	Platyhelminthes indet.	Platyhelminthes					2							2	31/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Egg/egg mass	Unknown					4							4	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	3							3	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	7							7	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	5							5	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				2					2	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>			1					1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			6					6	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Diamesinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			7					7	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			83					83	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			12					12	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				11					11	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Orthocladius lignicola</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Orthocladius</i>			1					1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			1					1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				7					7	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Clinocera</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Clinocera</i>			3					3	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Wiedemannia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Wiedemannia</i>			1					1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				2					2	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Hexatoma</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>			1					1	Whole
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			1					1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				5				5	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				21				21	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				79				79	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae				6					6	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1				1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				3				3	27/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					17				17	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				2				2	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						1				1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					1				1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				3				3	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					2				2	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3				3	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				4				4	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Kogotus</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Kogotus</i>				1				1	Whole
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					2				2	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				3				3	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Amiocentrus</i> sp.	Arthropoda	Insecta	Trichoptera	Brachycentridae	<i>Amiocentrus</i>			2					2	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Brachycentridae indet.	Arthropoda	Insecta	Trichoptera	Brachycentridae				1					1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	27/100
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					2							2	27/100
WQS04B	fb19-127-018	3	27-Aug-2019	Egg/egg mass	Unknown					2							2	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Insecta indet. (terrestrial)	Arthropoda	Insecta				1							1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	1							1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Protzia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hydryphantidae	<i>Protzia</i>	1							1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Atractides</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Atractides</i>	1							1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	9							9	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	19							19	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Acari indet.	Arthropoda	Arachnida						1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				5					5	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Rheotanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheotanytarsus</i>			6					6	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			3					3	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			15					15	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			24					24	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			9					9	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			3					3	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			4					4	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				7		6			13	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Clinocera</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Clinocera</i>			1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Wiedemannia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Wiedemannia</i>			1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				3					3	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae				1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				4				4	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				27				27	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				14				14	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				43				43	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1				1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					6				6	33/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1				1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				8				8	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					9				9	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				11				11	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Leptophlebiidae indet.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae					1				1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				4				4	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					21				21	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Suwallia</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Suwallia</i>				1				1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				2				2	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1				1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				22				22	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					1				1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				6				6	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						1				1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Amiocentrus</i> sp.	Arthropoda	Insecta	Trichoptera	Brachycentridae	<i>Amiocentrus</i>			2					2	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			3					3	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Rhyacophila vofixa</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	33/100
WQS04B	fb19-127-018	3	27-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera							1			1	33/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Acari indet. (terrestrial)	Arthropoda	Arachnida				1							1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	17							17	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	7							7	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				1					1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			3					3	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			5					5	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Diamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Diamesa</i>			1					1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			2					2	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			48					48	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			9					9	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				6					6	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Parorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parorthocladius</i>			3					3	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			5					5	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1		5			6	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae				1					1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				2					2	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae				1					1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				2				2	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				9				9	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Acentrella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>				2				2	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					3				3	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				25				25	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				106				106	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1				1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					10				10	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				4				4	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				4				4	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					2				2	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				46				46	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				3				3	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					7				7	35/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				6				6	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Paraperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Paraperla</i>				4				4	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1				1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				6				6	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>				1				1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Kogotus</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Kogotus</i>				3				3	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					3				3	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						2				2	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Brachycentrus</i> sp.	Arthropoda	Insecta	Trichoptera	Brachycentridae	<i>Brachycentrus</i>			2					2	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Rhyacophila brunnea/vemna</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera							1			1	35/100
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					2							2	35/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Hydrozetes</i> sp.	Arthropoda	Arachnida	Sarcoptiformes	Hydrozetidae	<i>Hydrozetes</i>	1							1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Limnozetes</i> sp.	Arthropoda	Arachnida	Sarcoptiformes	Limnozetidae	<i>Limnozetes</i>	1							1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	3							3	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	2							2	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Acari indet.	Arthropoda	Arachnida									1		1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Entomobryidae indet.	Arthropoda	Collembola	Collembola	Entomobryidae		3							3	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Isotomidae indet.	Arthropoda	Collembola	Collembola	Isotomidae		1							1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Neostempellina</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Neostempellina</i>			2					2	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			1					1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Pseudodiamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pseudodiamesa</i>			8					8	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			9					9	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			5					5	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			3					3	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Metriocnemus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Metriocnemus</i>			1					1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Orthocladiiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				4					4	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Orthocladius lignicola</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Orthocladius</i>			1					1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Parametriocnemus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parametriocnemus</i>			1					1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			9					9	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				40		1			41	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			1					1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Diptera indet.	Arthropoda	Insecta	Diptera					1					1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1				1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				19				19	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					5				5	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				3				3	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1				1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				8				8	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					9				9	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				2				2	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						1				1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					59				59	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				4				4	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				8				8	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	29/100

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Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				8			8	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				59			59	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						6			6	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Leptoceridae indet.	Arthropoda	Insecta	Trichoptera	Leptoceridae				8				8	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				22				22	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1				1	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			3				3	29/100
WQS03-DS	fb19-127-058	1	4-Oct-2019	Platyhelminthes indet.	Platyhelminthes					4						4	29/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	2						2	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Pseudodiamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pseudodiamesa</i>			1				1	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			16				16	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Parorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parorthocladius</i>			2				2	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			4				4	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				4		1		5	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Oreogeton</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Oreogeton</i>			1				1	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			2				2	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Tipula</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Tipula</i>			2				2	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				6			6	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				3			3	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				2			2	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1			1	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					17			17	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				3			3	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1			1	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Heptagenia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Heptagenia</i>				4			4	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					18			18	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				3			3	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					95			95	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				7			7	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1			1	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				17			17	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2			2	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1			1	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				9			9	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				32			32	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						12			12	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			3				3	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				34				34	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1				1	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1				1	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					3				3	38/100
WQS03-DS	fb19-127-059	2	4-Oct-2019	Platyhelminthes indet.	Platyhelminthes					2						2	38/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Insecta indet. (terrestrial)	Arthropoda	Insecta				1						1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Eiseniella tetraedra</i>	Annelida	Clitellata	Opisthopora	Lumbricidae	<i>Eiseniella</i>	2						2	Whole
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Hydrozetes</i> sp.	Arthropoda	Arachnida	Sarcoptiformes	Hydrozetidae	<i>Hydrozetes</i>	2						2	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Limnozetes</i> sp.	Arthropoda	Arachnida	Sarcoptiformes	Limnozetidae	<i>Limnozetes</i>	2						2	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Macropylina indet.	Arthropoda	Arachnida	Sarcoptiformes			1						1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	3						3	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	2						2	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Atrichopogon</i> sp.	Arthropoda	Insecta	Diptera	Ceratopogonidae	<i>Atrichopogon</i>			1				1	41/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			2					2	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			9					9	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			1					1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Metriocnemus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Metriocnemus</i>			1					1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Parametriocnemus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parametriocnemus</i>			1					1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			1					1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				5		3			8	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			3					3	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Tipula</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Tipula</i>			1					1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				13				13	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1				1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				1				1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				13				13	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				4				4	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					10				10	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				15				15	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				2				2	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Heptagenia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Heptagenia</i>				9				9	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					34				34	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				2				2	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					71				71	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				1				1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				4				4	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Despaxia augusta</i>	Arthropoda	Insecta	Plecoptera	Leuctridae	<i>Despaxia</i>				1				1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				9				9	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				6				6	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				9				9	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				33				33	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						5				5	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			6					6	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Ecclisomyia</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Ecclisomyia</i>			2					2	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				13					13	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rhyacophila brunnea/vemna</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	41/100
WQS03-DS	fb19-127-060	3	4-Oct-2019	Platyhelminthes indet.	Platyhelminthes					2							2	41/100
WQS18	fb19-127-055	1	4-Oct-2019	Insecta indet. (terrestrial)	Arthropoda	Insecta				2							2	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Entomobryidae indet.	Arthropoda	Collembola	Collembola	Entomobryidae		2							2	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Hypogastruridae indet.	Arthropoda	Collembola	Collembola	Hypogastruridae		1							1	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Isotomidae indet.	Arthropoda	Collembola	Collembola	Isotomidae		1							1	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Sminthuridae indet.	Arthropoda	Collembola	Collembola	Sminthuridae		1							1	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Collembola indet.	Arthropoda	Collembola	Collembola			1							1	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Micropsectra</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra</i>			5					5	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Neostempellina</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Neostempellina</i>			2					2	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			5					5	Whole

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS18	fb19-127-055	1	4-Oct-2019	<i>Pseudodiamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pseudodiamesa</i>			51					51	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			5					5	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			3					3	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Heterotrissocladius marcidus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heterotrissocladius</i>			7					7	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Parorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parorthocladius</i>			2					2	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae				2					2	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				8					8	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				2					2	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			2					2	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae				1					1	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				9				9	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				9				9	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1				1	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					12				12	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				24				24	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				3				3	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					23				23	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				2				2	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					120				120	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				10				10	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1				1	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				4				4	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3				3	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				7				7	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						8				8	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			16					16	Whole
WQS18	fb19-127-055	1	4-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			7					7	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					14					14	Whole
WQS18	fb19-127-055	1	4-Oct-2019	Arachnida indet. (terrestrial)	Arthropoda	Arachnida				1							1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Henlea</i> sp.	Annelida	Clitellata		Enchytraeidae	<i>Henlea</i>	1							1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Hydrozetes</i> sp.	Arthropoda	Arachnida	Sarcoptiformes	Hydrozetidae	<i>Hydrozetes</i>	2							2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Oribatida indet.	Arthropoda	Arachnida	Sarcoptiformes			1							1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	3							3	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Entomobryidae indet.	Arthropoda	Collembola	Collembola	Entomobryidae		3							3	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Micropsectra</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra</i>			1					1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Neostempellina</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Neostempellina</i>			2					2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				7					7	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			11					11	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Diamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Diamesa</i>			2					2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Pseudodiamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pseudodiamesa</i>			14					14	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			14					14	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			4					4	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Heterotrissocladius marcidus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heterotrissocladius</i>			3					3	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Parametriocnemus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parametriocnemus</i>			2					2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Monodiamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Monodiamesa</i>			1					1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Procladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Procladius</i>			2					2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				13		3			16	Whole

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS18	fb19-127-056	2	4-Oct-2019	<i>Oreogeton</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Oreogeton</i>								1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae									1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae									1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Tipula</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Tipula</i>								1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae									1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								18	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								12	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae									13	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>								17	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>								2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>								5	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Heptagenia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Heptagenia</i>								6	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae									12	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>								1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae									47	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>								8	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae									2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>								7	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>								2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>								8	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>								14	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera										8	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			1					1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			4					4	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Ecclisomyia</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Ecclisomyia</i>			2					2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Psychoglypha</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Psychoglypha</i>			2					2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				36					36	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			6					6	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			2					2	Whole
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhyacophila vofixa</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	Whole
WQS18	fb19-127-056	2	4-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					7					7	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae					1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Oribatida indet.	Arthropoda	Arachnida	Sarcoptiformes			5							5	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	4							4	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	2							2	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Isotomidae indet.	Arthropoda	Collembola	Collembola	Isotomidae		4							4	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Neostempellina</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Neostempellina</i>				3				3	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae					6				6	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>				9				9	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Diamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Diamesa</i>				1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Pseudodiamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pseudodiamesa</i>				35				35	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>				20				20	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>				3				3	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Heterotrissocladius marcidus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heterotrissocladius</i>				1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae					3				3	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>				11				11	Whole

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split
WQS18	fb19-127-057	3	4-Oct-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			4				4	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Procladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Procladius</i>			2				2	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				16		2		18	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Oreogeton</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Oreogeton</i>			1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				2				2	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			8				8	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Eloeophila</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Eloeophila</i>			2				2	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				10			10	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				8			8	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1			1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					16			16	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				12			12	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				4			4	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Heptagenia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Heptagenia</i>				2			2	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					5			5	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				1			1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					133			133	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				6			6	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				23			23	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				12			12	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				9			9	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						5			5	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				37				37	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhyacophila atrata</i> complex	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			3				3	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhyacophila sibirica</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1				1	Whole
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			5				5	Whole
WQS18	fb19-127-057	3	4-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					5				5	Whole
WQS06-US	fb19-127-064	1	4-Oct-2019	Ostracoda indet.	Arthropoda	Ostracoda				6						6	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		1						1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Atractides</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Atractides</i>	1						1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	1						1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Stygothrombium</i> sp.	Arthropoda	Arachnida	Trombidiformes	Stygothrombidiidae	<i>Stygothrombium</i>	1						1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			1				1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			1				1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			1				1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>			1				1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				2				2	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1				1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Hesperoconopa</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hesperoconopa</i>			1				1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Hexatoma</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>			1				1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				11			11	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				2			2	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				16			16	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				60			60	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1			1	19/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS06-US	fb19-127-064	1	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					32				32	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				2				2	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				3				3	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Heptagenia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Heptagenia</i>				11				11	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					13				13	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				27				27	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						2				2	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					5				5	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					6				6	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Leuctridae indet.	Arthropoda	Insecta	Plecoptera	Leuctridae					1				1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				6				6	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					4				4	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				79				79	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						2				2	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					2					2	19/100
WQS06-US	fb19-127-064	1	4-Oct-2019	Platyhelminthes indet.	Platyhelminthes					3							3	19/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Nematoda indet.	Nematoda					1							1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>						1		1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			1					1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			3					3	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			1					1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae						1			1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Hexatoma</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>			1					1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				2				2	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1				1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				1				1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				128				128	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					29				29	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				3				3	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				3				3	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					14				14	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				33				33	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					3				3	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				5				5	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				10				10	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				66				66	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						5				5	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Arctopsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Arctopsyche</i>			3					3	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				2					2	14/100
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	14/100
WQS06-US	fb19-127-065	2	4-Oct-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		3							3	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				5					5	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			1					1	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1				1	20/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				4				4	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				2				2	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				2				2	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				123				123	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					17				17	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				3				3	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					5				5	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				55				55	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				10				10	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				9				9	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					3				3	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				112				112	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	Arctopsychinae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Parapsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Parapsyche</i>			1					1	20/100
WQS06-US	fb19-127-065	2	4-Oct-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	20/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Pagastia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pagastia</i>			1					1	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			3					3	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				3		1			4	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1					1	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				2				2	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				1				1	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				95				95	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					28				28	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				4				4	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					12				12	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				28				28	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					6				6	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				2				2	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				4				4	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				11				11	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>				1				1	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					2				2	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				113				113	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						4				4	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Apatania</i> sp.	Arthropoda	Insecta	Trichoptera	Apataniidae	<i>Apatania</i>			1					1	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Arctopsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Arctopsyche</i>			2					2	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	17/100
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	17/100
WQS06-US	fb19-127-066	3	4-Oct-2019	Ostracoda indet.	Arthropoda	Ostracoda				2							2	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	1							1	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			3					3	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			1					1	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			2					2	18/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS06-US	fb19-127-066	3	4-Oct-2019	Clinocerinae indet.	Arthropoda	Insecta	Diptera	Empididae				1					1	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				4					4	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				2				2	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				1				1	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				106				106	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				3				3	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					21				21	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				2				2	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					25				25	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				30				30	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					3				3	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				2				2	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					5				5	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				7				7	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					2				2	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				91				91	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						2				2	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Parapsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Parapsyche</i>			2					2	18/100
WQS06-US	fb19-127-066	3	4-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				1					1	18/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Ostracoda indet.	Arthropoda	Ostracoda				3							3	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			1					1	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			1					1	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			1					1	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1					1	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Hexatoma</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>			1					1	Whole
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				6				6	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				7				7	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				4				4	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				3				3	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				81				81	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				3				3	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					65				65	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				2				2	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					38				38	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				33				33	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					8				8	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				7				7	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1				1	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3				3	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>				1				1	Whole
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					5				5	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				57				57	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						4				4	20/100
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					5					5	20/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS07	fb19-127-061	1	6-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	2							2	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			6					6	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				3					3	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Hesperoconopa</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hesperoconopa</i>			1					1	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				2				2	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				92				92	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					39				39	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				4				4	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Heptagenia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Heptagenia</i>				5				5	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					33				33	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				11				11	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					13				13	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				7				7	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					3				3	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Visoka cataractae</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Visoka</i>				1				1	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				13				13	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				4				4	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				6				6	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					5				5	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				49				49	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						1				1	15/100
WQS07	fb19-127-061	1	6-Oct-2019	<i>Parapsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Parapsyche</i>			2					2	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				2					2	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	15/100
WQS07	fb19-127-061	1	6-Oct-2019	Platyhelminthes indet.	Platyhelminthes					1							1	15/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	2							2	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			1					1	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			3					3	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			1					1	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			2					2	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae						1			1	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Simulium</i> sp.	Arthropoda	Insecta	Diptera	Simuliidae	<i>Simulium</i>			2					2	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				11		1			12	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1				1	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					1				1	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				130				130	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					42				42	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				5				5	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					7				7	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				29				29	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					19				19	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				2				2	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					4				4	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				12				12	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					8				8	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				29				29	40/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS07	fb19-127-062	2	6-Oct-2019	<i>Arctopsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Arctopsyche</i>			3					3	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				3					3	40/100
WQS07	fb19-127-062	2	6-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			4					4	40/100
WQS07	fb19-127-062	2	6-Oct-2019	Platyhelminthes indet.	Platyhelminthes					2							2	40/100
WQS07	fb19-127-063	3	6-Oct-2019	Ostracoda indet.	Arthropoda	Ostracoda				2							2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	2							2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	25/100
WQS07	fb19-127-063	3	6-Oct-2019	Acari indet.	Arthropoda	Arachnida									1		1	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			1					1	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			2					2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Wiedemannia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Wiedemannia</i>			1					1	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Hesperoconopa</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hesperoconopa</i>			1					1	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				2				2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				4				4	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				4				4	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				70				70	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					72				72	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				3				3	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				15				15	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Heptagenia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Heptagenia</i>				8				8	25/100
WQS07	fb19-127-063	3	6-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					8				8	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				25				25	25/100
WQS07	fb19-127-063	3	6-Oct-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						2				2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					21				21	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				1				1	25/100
WQS07	fb19-127-063	3	6-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					2				2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				4				4	25/100
WQS07	fb19-127-063	3	6-Oct-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					11				11	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				54				54	25/100
WQS07	fb19-127-063	3	6-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						2				2	25/100
WQS07	fb19-127-063	3	6-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				1					1	25/100
WQS07	fb19-127-063	3	6-Oct-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	25/100
WQS05	fb19-127-013	1	25-Aug-2019	Egg/egg mass	Unknown					12							12	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Nais communis</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1							1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	9							9	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	4							4	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Acari indet.	Arthropoda	Arachnida									3		3	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				2					2	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>				2				2	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>				2				2	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>				1				1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>				1				1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>				68				68	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>				2				2	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae					4				4	30/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS05	fb19-127-013	1	25-Aug-2019	<i>Parorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parorthocladius</i>			2					2	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			6					6	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			2					2	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			1					1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				12		10			22	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Clinocera</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Clinocera</i>			2					2	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Wiedemannia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Wiedemannia</i>			1					1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			5					5	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				1					1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Rhabdomastix</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Rhabdomastix</i>			1					1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Hexatoma</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>			1					1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				18				18	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Acentrella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>				3				3	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					1				1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				24				24	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				90				90	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	Whole
WQS05	fb19-127-013	1	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					7				7	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				3				3	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				2				2	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					30				30	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				1				1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						1				1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					6				6	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				1				1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1				1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3				3	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Hesperoperla</i> sp.	Arthropoda	Insecta	Plecoptera	Perlidae	<i>Hesperoperla</i>				10				10	30/100
WQS05	fb19-127-013	1	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				1				1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						1				1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera							1			1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Ostracoda indet.	Arthropoda	Ostracoda				1							1	30/100
WQS05	fb19-127-013	1	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					3							3	30/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	5							5	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	2							2	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Sperchonopsis</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchonopsis</i>	3							3	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				1					1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			3					3	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			2					2	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			1					1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			91					91	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			8					8	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Parorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parorthocladius</i>			1					1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			20					20	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			2					2	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			7					7	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae						6			6	17/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS05	fb19-127-014	2	25-Aug-2019	<i>Roederiodes</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Roederiodes</i>			2					2	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			1					1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				2					2	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Hexatoma</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>			1					1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				9				9	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					22				22	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				54				54	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Drunella doddsii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1				1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					10				10	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				4				4	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				1				1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1				1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					4				4	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				6				6	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				1				1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					8				8	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				1				1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Suwallia</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Suwallia</i>				6				6	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Paraperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Paraperla</i>				3				3	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				12				12	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					2				2	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				2				2	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Amiocentrus</i> sp.	Arthropoda	Insecta	Trichoptera	Brachycentridae	<i>Amiocentrus</i>			5					5	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	17/100
WQS05	fb19-127-014	2	25-Aug-2019	<i>Ecclisomyia</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Ecclisomyia</i>			2					2	17/100
WQS05	fb19-127-014	2	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					2		1			3	17/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Atractides</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Atractides</i>	1							1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	5							5	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Sperchonopsis</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchonopsis</i>	5							5	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			2					2	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			11					11	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			16					16	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			13					13	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			3					3	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				3		14			17	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae				1					1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				9		1			10	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				5				5	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Acentrella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>				3				3	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				17				17	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				123				123	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Drunella coloradensis</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				3				3	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					7				7	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				3				3	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				2				2	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					7				7	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				13				13	26/100
WQS05	fb19-127-015	3	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				4				4	26/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS05	fb19-127-015	3	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					8				8	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Haploperla sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Haploperla				4				4	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Suwallia sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Suwallia				4				4	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Paraperla sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Paraperla				1				1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Zapada cinctipes	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada				5				5	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Zapada columbiana	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada				1				1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Zapada sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada				7				7	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Megarcys sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	Megarcys				1				1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Rickera sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	Rickera				1				1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					2				2	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Taenionema sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Taenionema				1				1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						2				2	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Amiocentrus sp.	Arthropoda	Insecta	Trichoptera	Brachycentridae	Amiocentrus			6					6	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Arctopsyche sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Arctopsyche			1					1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Parapsyche sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	Parapsyche			1					1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Hydroptilidae indet.	Arthropoda	Insecta	Trichoptera	Hydroptilidae				1					1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Rhyacophila brunnea/vemna group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			1					1	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera							2			2	26/100
WQS05	fb19-127-015	3	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					7							7	26/100
WQS16	fb19-127-070	1	6-Oct-2019	Egg/egg mass	Unknown					2							2	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Eiseniella tetraedra	Annelida	Clitellata	Opisthopora	Lumbricidae	Eiseniella	2	2						4	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Lumbricidae indet.	Annelida	Clitellata	Opisthopora	Lumbricidae			2						2	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Oligochaeta indet.	Annelida	Clitellata					2						2	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Entomobryidae indet.	Arthropoda	Collembola	Collembola	Entomobryidae		2							2	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Isotomidae indet.	Arthropoda	Collembola	Collembola	Isotomidae		1							1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Heterlimnius sp.	Arthropoda	Insecta	Coleoptera	Elmidae	Heterlimnius	1		1					2	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				1					1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				5					5	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Tanytarsus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsus			23					23	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Brillia sp.	Arthropoda	Insecta	Diptera	Chironomidae	Brillia			8					8	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Parametriocnemus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Parametriocnemus			1					1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Psectrocladius sp.	Arthropoda	Insecta	Diptera	Chironomidae	Psectrocladius			1					1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Rheocricotopus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Rheocricotopus			28					28	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				17					17	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Oreogeton sp.	Arthropoda	Insecta	Diptera	Empididae	Oreogeton			1					1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Dicranota sp.	Arthropoda	Insecta	Diptera	Tipulidae	Dicranota			1					1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Tipula sp.	Arthropoda	Insecta	Diptera	Tipulidae	Tipula			1					1	Whole
WQS16	fb19-127-070	1	6-Oct-2019	Ameletus similior	Arthropoda	Insecta	Ephemeroptera	Ameletidae	Ameletus				21				21	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Ameletus sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	Ameletus				5				5	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Baetis sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis				4				4	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Drunella doddsii	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella				1				1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					1				1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Cinygmula sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Cinygmula				18				18	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Epeorus sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus				5				5	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Heptagenia sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Heptagenia				4				4	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae				60					60	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Rhithrogena sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Rhithrogena				1				1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					62				62	31/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split		
WQS16	fb19-127-070	1	6-Oct-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>								25	25	31/100
WQS16	fb19-127-070	1	6-Oct-2019	<i>Isoperla</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Isoperla</i>								3	3	31/100
WQS16	fb19-127-070	1	6-Oct-2019	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>								2	2	31/100
WQS16	fb19-127-070	1	6-Oct-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			1					1	1	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				7					7	7	31/100
WQS16	fb19-127-070	1	6-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					2					2	2	31/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Eiseniella tetraedra</i>	Annelida	Clitellata	Opisthopora	Lumbricidae	<i>Eiseniella</i>	1	3						4	4	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Oligochaeta indet.	Annelida	Clitellata					1						1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Oribatida indet.	Arthropoda	Arachnida	Sarcoptiformes			1							1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Heterlimnius</i> sp.	Arthropoda	Insecta	Coleoptera	Elmidae	<i>Heterlimnius</i>			2					2	2	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Hydrophilidae indet.	Arthropoda	Insecta	Coleoptera	Hydrophilidae		1							1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				6					6	6	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Neostempellina</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Neostempellina</i>			2					2	2	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			28					28	28	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			9					9	9	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				2					2	2	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Parametriocnemus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parametriocnemus</i>			2					2	2	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Parorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parorthocladius</i>			1					1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Oreogeton</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Oreogeton</i>			3					3	3	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			1					1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae				1					1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				12				12	12	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				7				7	7	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				5				5	5	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Drunella dodd sii</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	2	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					3				3	3	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				19				19	19	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				4				4	4	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					74				74	74	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				2				2	2	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					55				55	55	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				42				42	42	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Zapada columbiana</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>				16				16	16	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						7				7	7	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Apatania</i> sp.	Arthropoda	Insecta	Trichoptera	Apataniidae	<i>Apatania</i>			1					1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			2					2	2	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				1					1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	<i>Rhyacophila</i> sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			4					4	4	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	1	30/100
WQS16	fb19-127-071	2	6-Oct-2019	Platyhelminthes indet.	Platyhelminthes					1							1	1	30/100
WQS16	fb19-127-072	3	6-Oct-2019	Egg/egg mass	Unknown					2							2	2	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Insecta indet. (terrestrial)	Arthropoda	Insecta				1							1	1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	<i>Eiseniella tetraedra</i>	Annelida	Clitellata	Opisthopora	Lumbricidae	<i>Eiseniella</i>		1						1	1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	1							1	1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	<i>Torrenticola</i> sp.	Arthropoda	Arachnida	Trombidiformes	Torrenticolidae	<i>Torrenticola</i>	1							1	1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Elmidae indet.	Arthropoda	Insecta	Coleoptera	Elmidae				1					1	1	15/100

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Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS16	fb19-127-072	3	6-Oct-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae									24	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Tanytarsus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsus								22	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Brillia sp.	Arthropoda	Insecta	Diptera	Chironomidae	Brillia								32	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Eukiefferiella sp.	Arthropoda	Insecta	Diptera	Chironomidae	Eukiefferiella								1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Rheocricotopus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Rheocricotopus								2	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae									1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae									6	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae									1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Dicranota sp.	Arthropoda	Insecta	Diptera	Tipulidae	Dicranota								2	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Tipula sp.	Arthropoda	Insecta	Diptera	Tipulidae	Tipula								1	Whole
WQS16	fb19-127-072	3	6-Oct-2019	Ameletus similior	Arthropoda	Insecta	Ephemeroptera	Ameletidae	Ameletus				11				11	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Ameletus sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	Ameletus				9				9	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Drunella doddsii	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella				5				5	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					1				1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Cinygmula sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Cinygmula				32				32	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Epeorus sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus				4				4	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					51				51	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					48				48	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Sweltsa sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Sweltsa				26				26	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					2				2	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Zapada cinctipes	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada				2				2	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Zapada columbiana	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada				1				1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Megarcys sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	Megarcys				10				10	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					3				3	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						9				9	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Glossosoma sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Glossosoma			1					1	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				20					20	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Rhyacophila betteni group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			2					2	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					9					9	15/100
WQS16	fb19-127-072	3	6-Oct-2019	Platyhelminthes indet.	Platyhelminthes					1							1	15/100
WQS17	fb19-127-067	1	6-Oct-2019	Eiseniella tetraedra	Annelida	Clitellata	Opisthopora	Lumbricidae	Eiseniella	4	4						8	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		1							1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Henlea sp.	Annelida	Clitellata		Enchytraeidae	Henlea	1							1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Oligochaeta indet.	Annelida	Clitellata					1						1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Hygrobates sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	Hygrobates	1							1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Lebertia sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	Lebertia	1							1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Heterlimnius sp.	Arthropoda	Insecta	Coleoptera	Elmidae	Heterlimnius	2				8			10	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Elmidae indet.	Arthropoda	Insecta	Coleoptera	Elmidae					8				8	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae					12				12	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Polypedilum sp.	Arthropoda	Insecta	Diptera	Chironomidae	Polypedilum				1				1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae					24				24	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Tanytarsus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsus				9				9	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Brillia sp.	Arthropoda	Insecta	Diptera	Chironomidae	Brillia				3				3	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Corynoneura sp.	Arthropoda	Insecta	Diptera	Chironomidae	Corynoneura				1				1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae					1				1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Parorthocladius sp.	Arthropoda	Insecta	Diptera	Chironomidae	Parorthocladius				2				2	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Rheocricotopus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Rheocricotopus				12				12	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae					2				2	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae					2				2	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Oreogeton sp.	Arthropoda	Insecta	Diptera	Empididae	Oreogeton				1				1	30/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS17	fb19-127-067	1	6-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1					1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Tipula</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Tipula</i>			1					1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				10				10	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				5				5	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				2				2	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					2				2	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				21				21	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				15				15	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Heptagenia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Heptagenia</i>				11				11	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					60				60	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					41				41	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				8				8	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				30				30	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					1				1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Megarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Megarcys</i>				1				1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						6				6	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Ecclisomyia</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Ecclisomyia</i>			6					6	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				5					5	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Rhyacophila betteni</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			6					6	30/100
WQS17	fb19-127-067	1	6-Oct-2019	<i>Rhyacophila brunnea/vemna</i> group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	<i>Rhyacophila</i>			1					1	30/100
WQS17	fb19-127-067	1	6-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					4					4	30/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Eiseniella tetraedra</i>	Annelida	Clitellata	Opisthopora	Lumbricidae	<i>Eiseniella</i>			1					1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Rhyacodrilus</i> sp.	Annelida	Clitellata	Tubificida	Naididae	<i>Rhyacodrilus</i>	1							1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		1							1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	2							2	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Torrenticola</i> sp.	Arthropoda	Arachnida	Trombidiformes	Torrenticolidae	<i>Torrenticola</i>	1							1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Heterlimnius</i> sp.	Arthropoda	Insecta	Coleoptera	Elmidae	<i>Heterlimnius</i>				3				3	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Elmidae indet.	Arthropoda	Insecta	Coleoptera	Elmidae					4				4	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae					12				12	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>				1				1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Neostempellina</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Neostempellina</i>				1				1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae					136				136	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>				34				34	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Pagastia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pagastia</i>				2				2	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>				4				4	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Parametriocnemus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parametriocnemus</i>				1				1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>				8				8	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>				2				2	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae					9		1		10	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae					1				1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>				1				1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>					4			4	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				1				1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Acentrella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>				2				2	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					6				6	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					1				1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				9				9	15/100
WQS17	fb19-127-068	2	6-Oct-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				9				9	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					19				19	15/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS17	fb19-127-068	2	6-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					8				8	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Haploperla sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Haploperla				2				2	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Sweltsa sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Sweltsa				14				14	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Zapada oregonensis group	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada				1				1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Zapada columbiana	Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada				1				1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Megarcys sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	Megarcys				4				4	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						2				2	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Leptoceridae indet.	Arthropoda	Insecta	Trichoptera	Leptoceridae				9					9	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Limnephilidae indet.	Arthropoda	Insecta	Trichoptera	Limnephilidae				4					4	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Rhyacophila sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			6					6	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	15/100
WQS17	fb19-127-068	2	6-Oct-2019	Platyhelminthes indet.	Platyhelminthes					1							1	15/100
WQS17	fb19-127-069	3	6-Oct-2019	Ostracoda indet.	Arthropoda	Ostracoda				2							2	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Eiseniella tetraedra	Annelida	Clitellata	Opisthopora	Lumbricidae	Eiseniella	1	4						5	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		2							2	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Oligochaeta indet.	Annelida	Clitellata					1						1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Hygrobates sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	Hygrobates	2							2	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Heterlimnius sp.	Arthropoda	Insecta	Coleoptera	Elmidae	Heterlimnius	1			4				5	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				7					7	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				118					118	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Tanytarsus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsus			23					23	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Brillia sp.	Arthropoda	Insecta	Diptera	Chironomidae	Brillia			29					29	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Eukiefferiella sp.	Arthropoda	Insecta	Diptera	Chironomidae	Eukiefferiella			1					1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Metriocnemus sp.	Arthropoda	Insecta	Diptera	Chironomidae	Metriocnemus			1					1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Psectrocladius sp.	Arthropoda	Insecta	Diptera	Chironomidae	Psectrocladius			1					1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				8					8	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1					1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae				1					1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Ameletus similior	Arthropoda	Insecta	Ephemeroptera	Ameletidae	Ameletus				2				2	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Baetis sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis				3				3	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae				1					1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Cinygmula sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Cinygmula				3				3	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Epeorus sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus				9				9	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae				25					25	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae				31					31	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Sweltsa sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Sweltsa				11				11	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Paraperla sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	Paraperla				1				1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae				4					4	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Megarcys sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	Megarcys				3				3	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera					2					2	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Glossosoma sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	Glossosoma			2					2	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Psychoglypha sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	Psychoglypha			1					1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Rhyacophila betteni group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			1					1	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Rhyacophila brunnea/vemna group	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			4					4	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Rhyacophila sp.	Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila			4					4	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					6					6	27/100
WQS17	fb19-127-069	3	6-Oct-2019	Gastropoda indet.	Mollusca	Gastropoda					1						1	27/100
WQS08	fb19-127-010	1	25-Aug-2019	Egg/egg mass	Unknown					6							6	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Stylodrilus heringianus	Annelida	Clitellata	Lumbriculida	Lumbriculidae	Stylodrilus	14							14	46/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS08	fb19-127-010	1	25-Aug-2019	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	5							5	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Nais bretscheri</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1							1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Nais communis</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	6							6	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae			2						2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	3							3	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Feltria</i> sp.	Arthropoda	Arachnida	Trombidiformes	Feltriidae	<i>Feltria</i>	3							3	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	9							9	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Sperchonopsis</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchonopsis</i>	1							1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Stygothrombium</i> sp.	Arthropoda	Arachnida	Trombidiformes	Stygothrombidiidae	<i>Stygothrombium</i>	2							2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				3					3	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Paracladopelma</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Paracladopelma</i>			1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Corynocera</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynocera</i>			2					2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Neostempellina</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Neostempellina</i>			1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			2					2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			18					18	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			4					4	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>			2					2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			86					86	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Heterotrissocladius marcidus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heterotrissocladius</i>			1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>			15					15	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			13					13	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Thienemannimyia</i> group sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemannimyia</i>			1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				16		5			21	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Rhabdomastix</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Rhabdomastix</i>			2					2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae				1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Diptera indet.	Arthropoda	Insecta	Diptera							3			3	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				11				11	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				33				33	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					1				1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				1				1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					13				13	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				3				3	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				2				2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					6				6	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				2				2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					1				1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	<i>Ecclisomyia</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Ecclisomyia</i>			1					1	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Nematoda indet.	Nematoda					2							2	46/100
WQS08	fb19-127-010	1	25-Aug-2019	Ostracoda indet.	Arthropoda	Ostracoda				2							2	46/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	19	8						27	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Chaetogaster diastrophus</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Chaetogaster</i>	1							1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	9							9	62/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS08	fb19-127-011	2	25-Aug-2019	<i>Nais bretscheri</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1							1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Nais communis</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	3							3	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		4							4	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	4							4	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	5					1		6	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	2							2	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	2							2	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Acari indet.	Arthropoda	Arachnida				1							1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Hypogastruridae indet.	Arthropoda	Collembola	Collembola	Hypogastruridae		2							2	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Hydroporinae indet.	Arthropoda	Insecta	Coleoptera	Dytiscidae		1							1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae									4	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>								11	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>								5	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>								105	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>								4	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Heterotrissocladius marcidus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heterotrissocladius</i>								1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>								15	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae									5	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>								6	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>								1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae									2	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae									20	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>								2	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae							3		3	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae									1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Rhabdomastix</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Rhabdomastix</i>								2	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae									3	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Diptera indet.	Arthropoda	Insecta	Diptera										1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								11	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>								4	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>								4	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae									9	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>								1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>								1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera										1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae									2	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Paraperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Paraperla</i>								1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Rickera</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Rickera</i>								1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae									3	62/100
WQS08	fb19-127-011	2	25-Aug-2019	<i>Ecclisomyia</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Ecclisomyia</i>								1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera										1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Nematoda indet.	Nematoda					1							1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Oligochaeta indet. cocoon	Annelida							1					1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Ostracoda indet.	Arthropoda	Ostracoda				1							1	62/100
WQS08	fb19-127-011	2	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					1							1	62/100
WQS08	fb19-127-012	3	25-Aug-2019	Acari indet. (terrestrial)	Arthropoda	Arachnida				1							1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Egg/egg mass	Unknown					6							6	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Lumbriculidae indet.	Annelida	Clitellata	Lumbriculida	Lumbriculidae									2	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	20							4	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	4							4	52/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS08	fb19-127-012	3	25-Aug-2019	<i>Nais communis</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1							1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Nais</i> sp.	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>		1						1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae			1						1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Oligochaeta indet.	Annelida	Clitellata					2						2	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	3							3	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	3							3	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	1							1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Coleoptera indet.	Arthropoda	Insecta	Coleoptera						1				1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Microtendipes pedellus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Microtendipes</i>				3				3	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Micropsectra</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra</i>				2				2	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>				3				3	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>				108				108	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Diplocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Diplocladius</i>				6				6	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>				4				4	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>				25				25	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae					1				1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>				7				7	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>				4				4	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae					8		2		10	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae							1		1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Tanyderidae indet.	Arthropoda	Insecta	Diptera	Tanyderidae					1				1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Limoniinae indet.	Arthropoda	Insecta	Diptera	Tipulidae					3				3	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Tipula</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Tipula</i>				1				1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Hoplolabis</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hoplolabis</i>				2				2	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Ameletus similior</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>						2		2	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>						7		7	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Ameletus validus</i>	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>						27		27	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>						1		1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Drunella spinifera</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>						1		1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae							5		5	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Epeorus grandis</i> group	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>						1		1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae							19		19	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae							2		2	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>						2		2	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Isoperla</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Isoperla</i>						1		1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Rickera</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Rickera</i>						1		1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>						2		2	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera										1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Insecta indet. (terrestrial)	Arthropoda	Insecta				1							1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Pisidiidae indet.	Mollusca	Bivalvia	Veneroida	Pisidiidae				1					1	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Nematoda indet.	Nematoda					2							2	52/100
WQS08	fb19-127-012	3	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					4							4	52/100
WQS09	fb19-127-007	1	25-Aug-2019	Acari indet. (terrestrial)	Arthropoda	Arachnida				1							1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	13	6						19	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Oligochaeta indet.	Annelida	Clitellata					2						2	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Hygrobatidae indet.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae		2							2	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	1							1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Entomobryidae indet.	Arthropoda	Collembola	Collembola	Entomobryidae		2							2	50/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS09	fb19-127-007	1	25-Aug-2019	Hydraenidae indet.	Arthropoda	Insecta	Coleoptera	Hydraenidae				1					1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				10					10	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Microtendipes pedellus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Microtendipes</i>			1					1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			1					1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			12					12	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>			1					1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			33					33	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			10					10	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			1					1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			5					5	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				22		11			33	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae						1			1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Rhabdomastix</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Rhabdomastix</i>			2					2	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Diptera indet.	Arthropoda	Insecta	Diptera							2			2	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				18				18	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				15				15	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					18				18	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				2				2	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				4				4	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Epeorus deceptivus</i>	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1				1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					13				13	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				7				7	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						5				5	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					13				13	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				21				21	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				2				2	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					16				16	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				3				3	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	<i>Isoperla</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Isoperla</i>				1				1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					11				11	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						7				7	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				1					1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Egg/egg mass	Unknown					5							5	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Insecta indet. (terrestrial)	Arthropoda	Insecta				4							4	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Nematoda indet.	Nematoda					1							1	50/100
WQS09	fb19-127-007	1	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					18							18	50/100
WQS09	fb19-127-008	2	25-Aug-2019	Acari indet. (terrestrial)	Arthropoda	Arachnida				2							2	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	22	15						37	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Nais communis</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1							1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Atractides</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Atractides</i>	2							2	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	2							2	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Isotomidae indet.	Arthropoda	Collembola	Collembola	Isotomidae		3							3	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Staphylinidae indet.	Arthropoda	Insecta	Coleoptera	Staphylinidae				2					2	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>			1					1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			1					1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Boreoheptagyia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Boreoheptagyia</i>			1					1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>			2					2	40/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS09	fb19-127-008	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			42					42	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			35					35	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			1					1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			2					2	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			5					5	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				8		4			12	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae				1					1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Tipulidae indet.	Arthropoda	Insecta	Diptera	Tipulidae				1					1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Diptera indet.	Arthropoda	Insecta	Diptera					1					1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				18				18	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Acentrella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>				4				4	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				18				18	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					11				11	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1				1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				9				9	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					23				23	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				18				18	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				1				1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					8				8	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				1				1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Suwallia</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Suwallia</i>				19				19	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Sweltsa</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Sweltsa</i>				2				2	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					7				7	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				2				2	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Isoperla</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Isoperla</i>				1				1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Rickera</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Rickera</i>				1				1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					11				11	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						2				2	40/100
WQS09	fb19-127-008	2	25-Aug-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			1					1	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Insecta indet. (terrestrial)	Arthropoda	Insecta				3							3	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Nematoda indet.	Nematoda					3							3	40/100
WQS09	fb19-127-008	2	25-Aug-2019	Platyhelminthes indet.	Platyhelminthes					3							3	40/100
WQS09	fb19-127-009	3	25-Aug-2019	Lumbriculidae indet.	Annelida	Clitellata	Lumbriculida	Lumbriculidae			10						10	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	21	2						23	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Oligochaeta indet.	Annelida	Clitellata					2						2	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	2							2	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Stygothrombium</i> sp.	Arthropoda	Arachnida	Trombidiformes	Stygothrombidiidae	<i>Stygothrombium</i>	1							1	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				5					5	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>			1					1	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			1					1	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Boreoheptagyia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Boreoheptagyia</i>			1					1	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Corynoneura</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Corynoneura</i>			1					1	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			58					58	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Eukiefferiella</i>			7					7	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			3					3	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			8					8	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				4		8			12	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			1					1	29/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS09	fb19-127-009	3	25-Aug-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			2					2	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				4				4	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Acentrella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Acentrella</i>				2				2	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Baetis rhodani</i> group	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				11				11	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				14				14	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Drunella spinifera</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					24				24	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				6				6	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Cinygmula</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Cinygmula</i>				2				2	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					17				17	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				36				36	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				1				1	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						2				2	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					32				32	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Suwallia</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Suwallia</i>				9				9	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Paraperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Paraperla</i>				4				4	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Chloroperlidae indet.	Arthropoda	Insecta	Plecoptera	Chloroperlidae					7				7	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Zapada oregonensis</i> group	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				5				5	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Zapada</i> sp.	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				7				7	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Isoperla</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Isoperla</i>				1				1	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Rickera</i> sp.	Arthropoda	Insecta	Plecoptera	Perlodidae	<i>Rickera</i>				1				1	Whole
WQS09	fb19-127-009	3	25-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					2				2	29/100
WQS09	fb19-127-009	3	25-Aug-2019	<i>Taenionema</i> sp.	Arthropoda	Insecta	Plecoptera	Taeniopterygidae	<i>Taenionema</i>				2				2	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						3				3	29/100
WQS09	fb19-127-009	3	25-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				5					5	29/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	3	12						15	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Chaetogaster diaphanus</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Chaetogaster</i>	7	1						8	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	7	1						8	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Nais bretscheri</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	30	5						35	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		3							3	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Aeolosoma</i> sp.	Annelida			Aeolosomatidae	<i>Aeolosoma</i>	1							1	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Oribatida indet.	Arthropoda	Arachnida	Sarcoptiformes			7							7	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	2							2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Feltria</i> sp.	Arthropoda	Arachnida	Trombidiformes	Feltriidae	<i>Feltria</i>	2							2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Halacaridae indet.	Arthropoda	Arachnida	Trombidiformes	Halacaridae		1							1	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	2							2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Microtendipes pedellus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Microtendipes</i>			44					44	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Paracladopelma</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Paracladopelma</i>			1					1	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>			2					2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Rheotanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheotanytarsus</i>			2					2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			2					2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			12					12	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Pagastia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pagastia</i>			2					2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			42					42	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Heterotrissocladius marcidus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heterotrissocladius</i>			2					2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				3					3	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Synorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Synorthocladius</i>			5					5	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			13					13	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae				2					2	5/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS11-US	fb19-127-004	1	24-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				67		4			71	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Hemerodromia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Hemerodromia</i>			2					2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				31				31	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					3				3	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					12				12	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					8				8	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				2				2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					3				3	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Claassenia sabulosa</i>	Arthropoda	Insecta	Plecoptera	Perlidae	<i>Claassenia</i>				2				2	Whole
WQS11-US	fb19-127-004	1	24-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					1				1	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Pteronarcys californica</i>	Arthropoda	Insecta	Plecoptera	Pteronarcyidae	<i>Pteronarcys</i>				3				3	Whole
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Pteronarcys</i> sp.	Arthropoda	Insecta	Plecoptera	Pteronarcyidae	<i>Pteronarcys</i>				1				1	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Arctopsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Arctopsyche</i>			1					1	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				2					2	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			1					1	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					7					7	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Egg/egg mass	Unknown					1							1	5/100
WQS11-US	fb19-127-004	1	24-Aug-2019	Nematoda indet.	Nematoda					4							4	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	Acari indet. (terrestrial)	Arthropoda	Arachnida				2							2	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	8	5						13	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Chaetogaster diaphanus</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Chaetogaster</i>	1							1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	9							9	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Nais bretscheri</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	32	1						33	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Nais</i> sp.	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>		3						3	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Pristina aequiseta</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Pristina</i>	1							1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	1							1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Feltria</i> sp.	Arthropoda	Arachnida	Trombidiformes	Feltriidae	<i>Feltria</i>	1							1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Protzia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hydryphantidae	<i>Protzia</i>	1							1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	1							1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	1							1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	Acari indet.	Arthropoda	Arachnida						1			2		3	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	Entomobryidae indet.	Arthropoda	Collembola	Collembola	Entomobryidae		1							1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Cryptochironomus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cryptochironomus</i>			1					1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Microtendipes pedellus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Microtendipes</i>			43					43	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>			7					7	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Micropsectra/Tanytarsus</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Micropsectra/Tanytarsus</i>			1					1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			3					3	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				1					1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			3					3	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			26					26	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			1					1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			12					12	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Thienemannimyia</i> group sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemannimyia</i>			4					4	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				60		10			70	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	Clinocerinae indet.	Arthropoda	Insecta	Diptera	Empididae				1					1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Dicranota</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Dicranota</i>			1					1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				41				41	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				1				1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Drunella spinifera</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				2				2	5/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS11-US	fb19-127-005	2	24-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					9				9	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1				1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					6				6	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				1				1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Pteronarcys californica</i>	Arthropoda	Insecta	Plecoptera	Pteronarcyidae	<i>Pteronarcys</i>				5				5	Whole
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Hydropsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Hydropsyche</i>			1					1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	Hydroptilidae indet.	Arthropoda	Insecta	Trichoptera	Hydroptilidae				1					1	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			3					3	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					6					6	5/100
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Prostoma</i> sp.	Nemertea	Enopla	Hoplonemertea	Tetrastemmatidae	<i>Prostoma</i>	1							1	5/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	9	16						25	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	11	1						12	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Nais bretscheri</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	22	4						26	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Nais communis</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1							1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	Enchytraeidae indet.	Annelida	Clitellata		Enchytraeidae		1							1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	Oligochaeta indet.	Annelida	Clitellata						3					3	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Aeolosoma</i> sp.	Annelida			Aeolosomatidae	<i>Aeolosoma</i>	2							2	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Feltria</i> sp.	Arthropoda	Arachnida	Trombidiformes	Feltriidae	<i>Feltria</i>	1							1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	1							1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	3							3	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Sperchonopsis</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchonopsis</i>	1							1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Microtendipes pedellus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Microtendipes</i>			5					5	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>			17					17	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Paratanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Paratanytarsus</i>			1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Potthastia longimanus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Potthastia</i>			1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			66					66	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				4					4	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Synorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Synorthocladius</i>			3					3	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			17					17	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				52		5			57	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Neoplasta</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Neoplasta</i>			1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	Simuliidae indet.	Arthropoda	Insecta	Diptera	Simuliidae				1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				28				28	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					3				3	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				9				9	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Drunella spinifera</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1				1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					15				15	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				4				4	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					6				6	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Rhithrogena</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Rhithrogena</i>				6				6	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				1				1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Zapada cinctipes</i>	Arthropoda	Insecta	Plecoptera	Nemouridae	<i>Zapada</i>				1				1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Claassenia sabulosa</i>	Arthropoda	Insecta	Plecoptera	Perlidae	<i>Claassenia</i>				1				1	Whole
WQS11-US	fb19-127-006	3	24-Aug-2019	Perlodidae indet.	Arthropoda	Insecta	Plecoptera	Perlodidae					1				1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Pteronarcys californica</i>	Arthropoda	Insecta	Plecoptera	Pteronarcyidae	<i>Pteronarcys</i>				1				1	10/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS11-US	fb19-127-006	3	24-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						1				1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				3					3	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			1					1	10/100
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Onocosmoecus</i> sp.	Arthropoda	Insecta	Trichoptera	Limnephilidae	<i>Onocosmoecus</i>			1					1	Whole
WQS11-US	fb19-127-006	3	24-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					1					1	10/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	1	7						8	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	19	3						22	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Nais bretscheri</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	26	5						31	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Nais simplex</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	1							1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Nais</i> sp.	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>		9						9	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	2							2	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Feltria</i> sp.	Arthropoda	Arachnida	Trombidiformes	Feltriidae	<i>Feltria</i>	5							5	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	5							5	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	5							5	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Torrenticola</i> sp.	Arthropoda	Arachnida	Trombidiformes	Torrenticolidae	<i>Torrenticola</i>	1							1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Microtendipes pedellus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Microtendipes</i>			12					12	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Rheotanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheotanytarsus</i>			1					1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			8					8	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				2					2	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			11					11	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Pagastia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Pagastia</i>			1					1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			18					18	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Heterotrissocladius marcidus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heterotrissocladius</i>			5					5	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				6					6	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Parametriocnemus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Parametriocnemus</i>			1					1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Synorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Synorthocladius</i>			1					1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Thienemannimyia</i> group sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemannimyia</i>			13					13	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				89		8			97	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Hemerodromia</i> sp.	Arthropoda	Insecta	Diptera	Empididae	<i>Hemerodromia</i>			1					1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae				1					1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				23				23	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					1				1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Drunella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1				1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					42				42	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1				1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Epeorus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae	<i>Epeorus</i>				1				1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					3				3	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					4				4	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Haploperla</i> sp.	Arthropoda	Insecta	Plecoptera	Chloroperlidae	<i>Haploperla</i>				1				1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Plecoptera indet.	Arthropoda	Insecta	Plecoptera						3				3	25/100
WQS12	fb19-127-001	1	24-Aug-2019	<i>Hydropsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Hydropsyche</i>			1					1	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Hydropsychidae indet.	Arthropoda	Insecta	Trichoptera	Hydropsychidae				2					2	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Hydroptilidae indet.	Arthropoda	Insecta	Trichoptera	Hydroptilidae				6					6	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					8					8	25/100
WQS12	fb19-127-001	1	24-Aug-2019	Acari indet. (terrestrial)	Arthropoda	Arachnida				1							1	25/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Amphichaeta raptisae</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Amphichaeta</i>	1							1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	7							7	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Nais bretscheri</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	33	3						36	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Nais</i> sp.	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>		1						1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Oribatida indet.	Arthropoda	Arachnida	Sarcoptiformes			1							1	11/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split	
WQS12	fb19-127-002	2	24-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	3							3	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Feltria</i> sp.	Arthropoda	Arachnida	Trombidiformes	Feltriidae	<i>Feltria</i>	2							2	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Atractides</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Atractides</i>	1							1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	6							6	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Hygrobatidae indet.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae							1		1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	3							3	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1							1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Testudacarus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Torrenticolidae	<i>Testudacarus</i>	1							1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Acari indet.	Arthropoda	Arachnida				1							1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Demicryptochironomus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Demicryptochironomus</i>			1					1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Microtendipes pedellus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Microtendipes</i>			17					17	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			4					4	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				20					20	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			6					6	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Potthastia longimanus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Potthastia</i>			1					1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Brillia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Brillia</i>			1					1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			11					11	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Heterotrissocladius marcidus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heterotrissocladius</i>			10					10	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Orthocladiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				6					6	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Synorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Synorthocladius</i>			6					6	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Thienemanniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemanniella</i>			1					1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Monodiamesa</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Monodiamesa</i>			1					1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Pentaneurini indet.	Arthropoda	Insecta	Diptera	Chironomidae				4					4	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				79		5			84	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Empididae indet.	Arthropoda	Insecta	Diptera	Empididae				2					2	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Hexatoma</i> sp.	Arthropoda	Insecta	Diptera	Tipulidae	<i>Hexatoma</i>			1					1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				9				9	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Baetis</i> sp.	Arthropoda	Insecta	Ephemeroptera	Baetidae	<i>Baetis</i>				2				2	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					26				26	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					1				1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Ephemeroptera indet.	Arthropoda	Insecta	Ephemeroptera						2				2	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					4				4	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Pteronarcella</i> sp.	Arthropoda	Insecta	Plecoptera	Pteronarcyidae	<i>Pteronarcella</i>				1				1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Pteronarcys dorsata</i>	Arthropoda	Insecta	Plecoptera	Pteronarcyidae	<i>Pteronarcys</i>					1			1	Whole
WQS12	fb19-127-002	2	24-Aug-2019	<i>Glossosoma</i> sp.	Arthropoda	Insecta	Trichoptera	Glossosomatidae	<i>Glossosoma</i>			1					1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Hydropsyche</i> sp.	Arthropoda	Insecta	Trichoptera	Hydropsychidae	<i>Hydropsyche</i>			1					1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Agraylea</i> sp.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	<i>Agraylea</i>			6					6	11/100
WQS12	fb19-127-002	2	24-Aug-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			1					1	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					6					6	11/100
WQS12	fb19-127-002	2	24-Aug-2019	Egg/egg mass	Unknown					5							5	11/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Stylodrilus heringianus</i>	Annelida	Clitellata	Lumbriculida	Lumbriculidae	<i>Stylodrilus</i>	1	2						3	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Amphichaeta raptisae</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Amphichaeta</i>	1							1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Chaetogaster diaphanus</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Chaetogaster</i>	1							1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Chaetogaster diastrophus</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Chaetogaster</i>	1							1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Nais behningi</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	13							13	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Nais bretscheri</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	41							41	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Nais communis</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Nais</i>	2							2	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Pristina aequiseta</i>	Annelida	Clitellata	Tubificida	Naididae	<i>Pristina</i>	2							2	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Oribatida indet.	Arthropoda	Arachnida	Sarcoptiformes			1							1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Aturus</i> sp.	Arthropoda	Arachnida	Trombidiformes	Aturidae	<i>Aturus</i>	1							1	20/100

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Phylum	Class	Order	Family	Genus	Adult	Juvenile	Larvae	Nymph	Pupa	Deutonymph	Raw Count	Split
WQS12	fb19-127-003	3	24-Aug-2019	<i>Feltria</i> sp.	Arthropoda	Arachnida	Trombidiformes	Feltriidae	<i>Feltria</i>						1	1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Hygrobates</i> sp.	Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	<i>Hygrobates</i>	8						8	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Lebertia</i> sp.	Arthropoda	Arachnida	Trombidiformes	Lebertiidae	<i>Lebertia</i>	4						4	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Sperchon</i> sp.	Arthropoda	Arachnida	Trombidiformes	Sperchontidae	<i>Sperchon</i>	1						1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Hydroporinae indet.	Arthropoda	Insecta	Coleoptera	Dytiscidae				1				1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Ceratopogoninae indet.	Arthropoda	Insecta	Diptera	Ceratopogonidae				2				2	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Microtendipes pedellus</i> group	Arthropoda	Insecta	Diptera	Chironomidae	<i>Microtendipes</i>			21				21	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Paracladopelma</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Paracladopelma</i>			2				2	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Polypedilum</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Polypedilum</i>			2				2	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Stictochironomus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stictochironomus</i>			1				1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Cladotanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cladotanytarsus</i>			3				3	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Stempellinella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Stempellinella</i>			3				3	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Tanytarsini indet.	Arthropoda	Insecta	Diptera	Chironomidae				16				16	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Tanytarsus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tanytarsus</i>			21				21	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	Arthropoda	Insecta	Diptera	Chironomidae	<i>Cricotopus/Orthocladius</i>			9				9	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Heleniella</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heleniella</i>			1				1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Heterotrissocladius marcidus</i>	Arthropoda	Insecta	Diptera	Chironomidae	<i>Heterotrissocladius</i>			12				12	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Hydrobaenus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Hydrobaenus</i>			1				1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Orthoclaadiinae indet.	Arthropoda	Insecta	Diptera	Chironomidae				5				5	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Psectrocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Psectrocladius</i>			1				1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Rheocricotopus</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Rheocricotopus</i>			1				1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Synorthocladius</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Synorthocladius</i>			3				3	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Tvetenia</i> sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Tvetenia</i>			1				1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Thienemannimyia</i> group sp.	Arthropoda	Insecta	Diptera	Chironomidae	<i>Thienemannimyia</i>			20				20	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Chironomidae indet.	Arthropoda	Insecta	Diptera	Chironomidae				23		3		26	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Pericomaini indet.	Arthropoda	Insecta	Diptera	Psychodidae				1				1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Diptera indet.	Arthropoda	Insecta	Diptera					1				1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Ameletus</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ameletidae	<i>Ameletus</i>				19			19	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Baetidae indet.	Arthropoda	Insecta	Ephemeroptera	Baetidae					3			3	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Drunella spinifera</i>	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Drunella</i>				1			1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Ephemerellidae indet.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae					59			59	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Serratella</i> sp.	Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	<i>Serratella</i>				1			1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Heptageniidae indet.	Arthropoda	Insecta	Ephemeroptera	Heptageniidae					1			1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Leptophlebiidae indet.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae					1			1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Neoleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Neoleptophlebia</i>				1			1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Paraleptophlebia</i> sp.	Arthropoda	Insecta	Ephemeroptera	Leptophlebiidae	<i>Paraleptophlebia</i>				1			1	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Capniidae indet.	Arthropoda	Insecta	Plecoptera	Capniidae					3			3	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Agraylea</i> sp.	Arthropoda	Insecta	Trichoptera	Hydroptilidae	<i>Agraylea</i>			8				8	20/100
WQS12	fb19-127-003	3	24-Aug-2019	<i>Lepidostoma</i> sp.	Arthropoda	Insecta	Trichoptera	Lepidostomatidae	<i>Lepidostoma</i>			2				2	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Trichoptera indet.	Arthropoda	Insecta	Trichoptera					9				9	20/100
WQS12	fb19-127-003	3	24-Aug-2019	Petromyzontidae indet.	Chordara		Cephalaspidomorphi	Petromyzontidae				1				1	20/100

Notes:
Samples were collected with a 400 μm CABIN kick net.
2017 to 2019 samples were analyzed by Biologica.

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Acentrella turbida</i>	44.4	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Ameletus</i> sp.	255.6	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Baetidae indet.	55.6	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Baetis</i> sp.	33.3	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Chironomidae indet.	88.9	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Claassenia sabulosa</i>	2.0	ok	ok	Macro >15mm. Not included for CABIN upload.
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Clitellata indet.	11.1	ok	Exclude	Previously Oligochaeta indet.
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Cricotopus/Orthocladius</i> sp. complex	33.3	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Drunella</i> grandis/spinifera group	33.3	ok	ok	Take back to Drunella sp. for Cabin entry (101365)
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Epeorus</i> sp.	22.2	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Ephemerellidae indet.	277.8	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Ephemeroptera indet.	22.2	ok	Exclude	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Glossosoma</i> sp.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Hemerodromia</i> sp.	22.2	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Heptageniidae indet.	455.6	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Hydropsyche</i> sp.	100.0	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Hydroptilidae indet.	188.9	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Hygrobates</i> sp.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Krenosmittia</i> sp.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Lebertia</i> sp.	55.6	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Lebertiidae</i> indet.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Lepidostoma</i> sp.	144.4	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Leptophlebiidae indet.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Microtendipes</i> sp.	100.0	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Nais behningi</i>	88.9	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Neoplasta</i> sp.	22.2	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Paratanytarsus</i> sp.	66.7	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Perlidae indet.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Perlodidae indet.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Polypedilum</i> sp.	311.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Protzia</i> sp.	33.3	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Pteronarcys californica</i>	6.0	ok	ok	Macro >15mm. Not included for CABIN upload.
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Rheotanytarsus</i> sp.	22.2	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Rhithrogena</i> sp.	166.7	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Skwala</i> sp.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Sperchon</i> sp.	200.0	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Sperchonopsis</i> sp.	22.2	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Stylodrilus heringianus</i>	266.7	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Sweltsa</i> sp.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Tanytarsini</i> indet.	155.6	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Testudacarus</i> sp.	11.1	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Thienemannimyia</i> group sp.	22.2	ok	ok	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	Trichoptera indet.	11.1	ok	Exclude	
WQS11-U/S	fb18-157-001	1	20-Sep-2018	<i>Tvetenia</i> sp.	22.2	ok	ok	
WQS01	fb17-089-001	1	20-Sep-2017	<i>Hygrobates</i> sp.	11.8	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Lebertia</i> sp.	5.9	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Sperchon</i> sp.	11.8	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Collembola indet.	5.9	Exclude	Exclude	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Pericoma/Telmatoscopus</i> sp.	5.9	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS01	fb17-089-001	1	20-Sep-2017	Simuliidae indet.	5.9	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Brillia</i> sp.	11.8	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Tvetenia</i> sp.	29.4	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Chironomidae indet.	35.3	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Ameletus</i> sp.	23.5	ok	Exclude	Damaged
WQS01	fb17-089-001	1	20-Sep-2017	<i>Baetis</i> sp.	211.8	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Baetidae indet.	58.8	ok	Exclude	Damaged/immature
WQS01	fb17-089-001	1	20-Sep-2017	<i>Drunella doddsii</i>	105.9	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Ephemerellidae indet.	88.2	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Cinygmula</i> sp.	70.6	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Epeorus deceptivus</i>	17.6	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Epeorus</i> sp.	11.8	ok	Exclude	Damaged
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhithrogena</i> sp.	111.8	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Heptageniidae indet.	294.1	ok	Exclude	Damaged/immature
WQS01	fb17-089-001	1	20-Sep-2017	Capniidae indet.	35.3	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Sweltsa</i> sp.	5.9	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Chloroperlidae indet.	23.5	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Zapada cinctipes</i>	17.6	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Zapada columbiana</i>	76.5	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Zapada oregonensis</i> group	29.4	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Zapada</i> sp.	205.9	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Megarcys</i> sp.	23.5	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Perlodidae indet.	58.8	ok	Exclude	Damaged/immature
WQS01	fb17-089-001	1	20-Sep-2017	<i>Taenionema</i> sp.	35.3	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Plecoptera indet.	111.8	ok	Exclude	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Parapsyche</i> sp.	5.9	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Hydropsychidae indet.	47.1	ok	Exclude	Damaged/immature
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila atrata</i> complex	5.9	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila betteni</i> group	11.8	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila brunnea/vemna</i> group	5.9	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila hyalinata</i> group	5.9	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila</i> sp.	41.2	ok	Exclude	Damaged/immature
WQS01	fb17-089-001	1	20-Sep-2017	<i>Rhyacophila vofixa</i> group	11.8	ok	ok	-
WQS01	fb17-089-001	1	20-Sep-2017	Trichoptera indet.	11.8	ok	Exclude	Damaged/immature
WQS02	fb17-089-002	1	19-Sep-2017	<i>Hygrobates</i> sp.	16.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Sperchon</i> sp.	16.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Pericoma/Telmatoscopus</i> sp.	33.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Brillia</i> sp.	16.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Tvetenia</i> sp.	33.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Ameletus</i> sp.	50.0	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Baetis</i> sp.	133.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	Baetidae indet.	166.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Drunella doddsii</i>	466.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	Ephemerellidae indet.	383.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Cinygmula</i> sp.	50.0	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Epeorus grandis</i> group	116.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Epeorus</i> sp.	33.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Rhithrogena</i> sp.	283.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	Heptageniidae indet.	1,166.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	Ephemeroptera indet.	50.0	ok	Exclude	Damaged

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS02	fb17-089-002	1	19-Sep-2017	Capniidae indet.	50.0	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	Chloroperlidae indet.	16.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Zapada cinctipes</i>	183.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Zapada columbiana</i>	116.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Zapada oregonensis</i> group	33.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Zapada</i> sp.	666.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Hesperoperla</i> sp.	16.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Megarcys</i> sp.	16.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	Perlodidae indet.	150.0	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Taenionema</i> sp.	716.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	Plecoptera indet.	150.0	ok	Exclude	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Parapsyche</i> sp.	16.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	Hydropsychidae indet.	33.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Rhyacophila atrata</i> complex	16.7	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Rhyacophila betteni</i> group	33.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	<i>Rhyacophila vofixa</i> group	83.3	ok	ok	-
WQS02	fb17-089-002	1	19-Sep-2017	Trichoptera indet.	200.0	ok	Exclude	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Hygrobates</i> sp.	4.5	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Oreoleptis</i> sp.	4.5	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Simulium</i> sp.	100.0	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Brillia</i> sp.	9.1	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Tvetenia</i> sp.	4.5	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	Chironomini indet.	4.5	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Ameletus</i> sp.	27.3	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Acentrella</i> sp.	4.5	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Baetis fuscatus</i> group	27.3	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Baetis</i> sp.	200.0	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Baetis vernus</i> complex	245.5	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	Baetidae indet.	86.4	ok	Exclude	Damaged/immature
WQS05	fb17-089-003	1	18-Sep-2017	<i>Drunella doddsii</i>	36.4	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	Ephemerellidae indet.	31.8	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Epeorus deceptivus</i>	18.2	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Epeorus grandis</i> group	27.3	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Epeorus</i> sp.	22.7	ok	Exclude	Damaged
WQS05	fb17-089-003	1	18-Sep-2017	<i>Rhithrogena</i> sp.	86.4	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	Heptageniidae indet.	63.6	ok	Exclude	Damaged/immature
WQS05	fb17-089-003	1	18-Sep-2017	Capniidae indet.	68.2	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Paraperla</i> sp.	50.0	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	Leuctridae indet.	4.5	ok	Exclude	Damaged/immature
WQS05	fb17-089-003	1	18-Sep-2017	<i>Zapada cinctipes</i>	31.8	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Zapada columbiana</i>	4.5	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Zapada</i> sp.	31.8	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	Perlodidae indet.	4.5	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Taenionema</i> sp.	109.1	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	Plecoptera indet.	18.2	ok	Exclude	Damaged/immature
WQS05	fb17-089-003	1	18-Sep-2017	Hydropsychidae indet.	22.7	ok	Exclude	Damaged/immature
WQS05	fb17-089-003	1	18-Sep-2017	<i>Rhyacophila atrata</i> complex	36.4	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	<i>Rhyacophila</i> sp.	9.1	ok	ok	-
WQS05	fb17-089-003	1	18-Sep-2017	Trichoptera indet.	13.6	ok	Exclude	Damaged/immature
WQS08	fb17-089-004	1	18-Sep-2017	<i>Aturus</i> sp.	9.1	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS08	fb17-089-004	1	18-Sep-2017	<i>Hygrobates</i> sp.	18.2	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Lebertia</i> sp.	109.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Sperchon</i> sp.	45.5	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	Acari indet.	18.2	ok	Exclude	-
WQS08	fb17-089-004	1	18-Sep-2017	Amphipoda indet.	9.1	ok	Exclude	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Clinocera</i> sp.	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Simulium</i> sp.	45.5	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	Simuliidae indet.	136.4	ok	Exclude	Damaged/immature
WQS08	fb17-089-004	1	18-Sep-2017	<i>Cricotopus/Orthocladius</i> sp. complex	127.3	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rheotanytarsus</i> sp.	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Tvetenia</i> sp.	481.8	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	Chironomidae indet.	254.5	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	Orthocladiinae indet.	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Ameletus</i> sp.	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Baetis fuscatus</i> group	18.2	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Baetis</i> sp.	45.5	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Baetis vernus</i> complex	154.5	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Serratella</i> sp.	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Drunella doddsii</i>	172.7	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Drunella grandis/spinifera</i> group	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	Ephemere llidae indet.	145.5	ok	Exclude	Damaged/immature
WQS08	fb17-089-004	1	18-Sep-2017	<i>Epeorus deceptivus</i>	72.7	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Epeorus</i> sp.	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rhithrogena</i> sp.	81.8	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	Heptageniidae indet.	245.5	ok	Exclude	Damaged/immature
WQS08	fb17-089-004	1	18-Sep-2017	Ephemeroptera indet.	27.3	ok	Exclude	Damaged/immature
WQS08	fb17-089-004	1	18-Sep-2017	<i>Stylodrilus heringianus</i>	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	Capniidae indet.	181.8	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Paraperla</i> sp.	27.3	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Sweltsa</i> sp.	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Zapada columbiana</i>	27.3	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Zapada oregonensis</i> group	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Zapada</i> sp.	36.4	ok	Exclude	Damaged/immature
WQS08	fb17-089-004	1	18-Sep-2017	<i>Megarcys</i> sp.	45.5	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Skwala</i> sp.	18.2	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Taenionema</i> sp.	127.3	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	Plecoptera indet.	81.8	ok	Exclude	Damaged/immature
WQS08	fb17-089-004	1	18-Sep-2017	<i>Glossosoma</i> sp.	18.2	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	Hydropsychidae indet.	27.3	ok	Exclude	Damaged/immature
WQS08	fb17-089-004	1	18-Sep-2017	<i>Lepidostoma</i> sp.	18.2	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rhyacophila atrata</i> complex	9.1	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rhyacophila brunnea/vemna</i> group	18.2	ok	ok	-
WQS08	fb17-089-004	1	18-Sep-2017	<i>Rhyacophila</i> sp.	36.4	ok	Exclude	Damaged/immature
WQS09	fb17-089-005	1	19-Sep-2017	Hygrobatidae indet.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Lebertia</i> sp.	114.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Sperchon</i> sp.	64.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Sperchontidaeindet.	14.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Acari indet.	28.6	ok	Exclude	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Wiedemannia</i> sp.	21.4	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Empididae indet.	7.1	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS09	fb17-089-005	1	19-Sep-2017	<i>Simulium</i> sp.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Simuliidae indet.	64.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Brillia</i> sp.	14.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Cricotopus/Orthocladius</i> sp. complex	157.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Tvetenia</i> sp.	57.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Chironomidae indet.	142.9	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Orthocladiinae indet.	14.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Ameletus</i> sp.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Baetis</i> sp.	142.9	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Baetidae indet.	71.4	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Serratella</i> sp.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Drunella coloradensis</i>	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Drunella doddsii</i>	35.7	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Drunella grandis/spinifera</i> group	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Ephemerellidae indet.	235.7	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Cinygmula</i> sp.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Epeorus deceptivus</i>	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Epeorus grandis</i> group	14.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Rhithrogena</i> sp.	21.4	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Heptageniidae indet.	57.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Leptophlebiidae indet.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Ephemeroptera indet.	14.3	ok	Exclude	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Stylodrilus heringianus</i>	14.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Nais behningi</i>	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Enchytraeidae indet.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Capniidae indet.	221.4	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Paraperla</i> sp.	71.4	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Sweltsa</i> sp.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Chloroperlidae indet.	14.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Zapada cinctipes</i>	21.4	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Zapada columbiana</i>	14.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Zapada</i> sp.	21.4	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Megarcys</i> sp.	42.9	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Perlodidae indet.	42.9	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Taenionema</i> sp.	114.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Plecoptera indet.	50.0	ok	Exclude	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Arctopsyche</i> sp.	28.6	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	Hydropsychidae indet.	28.6	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Lepidostoma</i> sp.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Ecclisomyia</i> sp.	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Rhyacophila atrata</i> complex	14.3	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Rhyacophila brunnea/vemna</i> group	7.1	ok	ok	-
WQS09	fb17-089-005	1	19-Sep-2017	<i>Rhyacophila</i> sp.	42.9	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Hygrobates</i> sp.	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Lebertia</i> sp.	27.3	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Sperchon</i> sp.	22.7	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Hemerodromia</i> sp.	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Simuliidae indet.	18.2	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Cricotopus/Orthocladius</i> sp. complex	27.3	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Polypedilum</i> sp.	4.5	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS12	fb17-089-006	1	20-Sep-2017	<i>Tanytarsus</i> sp.	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Tvetenia</i> sp.	9.1	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Chironomini indet.	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Orthocladiinae indet.	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Ameletus</i> sp.	22.7	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Acentrella turbida</i>	13.6	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Baetis fuscatus</i> group	31.8	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Baetis</i> sp.	50.0	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Baetidae indet.	122.7	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Serratella</i> sp.	22.7	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Ephemerellidae indet.	168.2	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Rhithrogena</i> sp.	181.8	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Heptageniidae indet.	254.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Neoleptophlebia</i> sp.	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Stylodrilus heringianus</i>	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Nais behningi</i>	9.1	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Enchytraeidae indet.	18.2	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Capniidae indet.	59.1	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Paraperla</i> sp.	13.6	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Sweltsa</i> sp.	13.6	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Zapada cinctipes</i>	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Skwala</i> sp.	9.1	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Perlodidae indet.	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Taenionema</i> sp.	190.9	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Plecoptera indet.	40.9	ok	Exclude	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Glossosoma</i> sp.	27.3	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Arctopsyche</i> sp.	4.5	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Hydropsyche</i> sp.	13.6	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	Hydropsychidae indet.	13.6	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Lepidostoma</i> sp.	18.2	ok	ok	-
WQS12	fb17-089-006	1	20-Sep-2017	<i>Rhyacophila</i> sp.	4.5	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Atractides</i>	28.6	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Sperchon</i>	28.6	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Lebertia</i>	42.9	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Ameletus</i>	57.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Acentrella</i>	21.4	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Baetis</i>	464.3	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Serratella</i>	21.4	ok	ok	-
BUL01	28549	1	22-Aug-2016	Ephemerellidae	242.9	ok	ok	-
BUL01	28549	1	22-Aug-2016	Leptophlebiidae	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Rhithrogena</i>	64.3	ok	ok	-
BUL01	28549	1	22-Aug-2016	Heptageniidae	278.6	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Nais</i>	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	Perlidae	21.4	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Claassenia sabulosa</i>	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Skwala</i>	21.4	ok	ok	-
BUL01	28549	1	22-Aug-2016	Perlodidae	21.4	ok	ok	-
BUL01	28549	1	22-Aug-2016	Plecoptera	7.1	ok	Exclude	-
BUL01	28549	1	22-Aug-2016	Capniidae	28.6	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Arctopsyche</i>	28.6	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
BUL01	28549	1	22-Aug-2016	<i>Arctopsyche grandis</i>	278.6	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Hydropsyche</i>	114.3	ok	ok	-
BUL01	28549	1	22-Aug-2016	Hydropsychidae	92.9	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Lepidostoma</i>	50.0	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Rhyacophila</i>	14.3	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Glossosoma</i>	57.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Neoplasta</i>	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Simulium</i>	14.3	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Brillia</i>	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Tvetenia</i>	78.6	ok	ok	-
BUL01	28549	1	22-Aug-2016	Chironomidae	128.6	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Corynoneura</i>	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Eukiefferiella</i>	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Heleniella</i>	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Micropsectra</i>	71.4	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Pagastia</i>	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Parakiefferiella</i>	7.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Phaenopsectra</i>	107.1	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Rheocricotopus</i>	14.3	ok	ok	-
BUL01	28549	1	22-Aug-2016	<i>Robackia demeijerei</i>	14.3	ok	ok	-
BUL15	3144	1	3-Sep-2000	<i>Ameletus</i>	6.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	<i>Baetis</i>	13.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	Ephemerellidae	5.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	Heptageniidae	1.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	Chloroperlidae	7.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	Leuctridae	3.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	<i>Zapada</i>	1.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	<i>Doroneuria</i>	1.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	Perlodidae	6.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	<i>Taenionema</i>	2.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	<i>Rhyacophila</i>	4.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	Brachycentridae	2.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	Arachnida	8.0	ok	Exclude	-
BUL15	3144	1	3-Sep-2000	<i>Hemerodromia</i>	1.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	<i>Pericoma</i>	32.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	<i>Bezzia</i>	4.0	ok	ok	-
BUL15	3144	1	3-Sep-2000	Chironomidae	186.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Ameletus</i>	1.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Baetis</i>	38.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Drunella</i>	7.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Ephemerellidae	4.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Epeorus</i>	9.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Rhithrogena</i>	15.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Heptageniidae	4.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Chloroperlidae	5.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Leuctridae	1.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Zapada</i>	6.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Skwala</i>	2.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Taenionema</i>	44.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Plecoptera	1.0	ok	Exclude	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
BUL15	3145	2	3-Sep-2000	Capniidae	9.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Parapsyche</i>	4.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Limnephilidae	2.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Rhyacophila</i>	3.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Brachycentridae	2.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Glossosoma</i>	15.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Arachnida	6.0	ok	Exclude	-
BUL15	3145	2	3-Sep-2000	Empididae	2.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Pericoma</i>	10.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Bezzia</i>	1.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	<i>Antocha</i>	2.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Chironomidae	52.0	ok	ok	-
BUL15	3145	2	3-Sep-2000	Turbellaria	2.0	Exclude	Exclude	-
BUL15	3146	3	3-Sep-2000	Collembola	1.0	Exclude	Exclude	-
BUL15	3146	3	3-Sep-2000	<i>Baetis</i>	3.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	Baetidae	38.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	<i>Drunella</i>	3.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	<i>Cinygmula</i>	1.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	<i>Epeorus</i>	7.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	<i>Rhithrogena</i>	8.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	Heptageniidae	6.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	Leuctridae	1.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	<i>Zapada</i>	6.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	<i>Taenionema</i>	32.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	Plecoptera	10.0	ok	Exclude	-
BUL15	3146	3	3-Sep-2000	Trichoptera	1.0	ok	Exclude	-
BUL15	3146	3	3-Sep-2000	<i>Glossosoma</i>	3.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	Arachnida	1.0	ok	Exclude	-
BUL15	3146	3	3-Sep-2000	<i>Pericoma</i>	13.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	Tipulidae	1.0	ok	ok	-
BUL15	3146	3	3-Sep-2000	Chironomidae	39.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Sperchon</i>	42.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Lebertia</i>	57.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Ameletus</i>	1.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Baetis</i>	247.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Drunella coloradensis</i>	10.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Drunella doddsii</i>	18.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Serratella</i>	1.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Paraleptophlebia</i>	73.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Cinygmula</i>	19.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Epeorus deceptivus</i>	70.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Epeorus longimanus</i>	32.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Rhithrogena</i>	77.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Sweltsa</i>	8.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Chloroperlidae	8.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Suwallia</i>	2.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Despaxia</i>	8.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Zapada</i>	133.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	<i>Kogotus</i>	2.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Taeniopterygidae	26.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
BUL15	9920	1	23-Aug-2006	Capniidae	26.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Arctopsyche	1.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Rhyacophila	58.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Amiocentrus	65.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Chelifera	1.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Pericoma	384.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Simulium	57.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Bezzia/Palpomyia	8.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Antocha	1.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Rhabdomastix	8.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Chironomidae	426.0	ok	ok	-
BUL15	9920	1	23-Aug-2006	Polycelis	28.0	Exclude	ok	-
BUL15	9920	1	23-Aug-2006	Ostracoda	16.0	Exclude	Exclude	-
BUL16	2534	1	3-Sep-2004	Baetis	234.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Drunella doddsii	18.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Ephemerellidae	12.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Paraleptophlebia	18.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Cinygmula	2.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Epeorus	24.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Rhithrogena	32.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Heptageniidae	78.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Chloroperlidae	16.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Suwallia	2.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Zapada	12.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Taeniopterygidae	40.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Capniidae	10.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Hydropsychidae	4.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Rhyacophila	16.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Glossosoma	2.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Arachnida	14.0	ok	Exclude	-
BUL16	2534	1	3-Sep-2004	Oreogeton	2.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Pericoma	4.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Bezzia	6.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Antocha	4.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Tipula	2.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Chironomidae	166.0	ok	ok	-
BUL16	2534	1	3-Sep-2004	Polycelis	12.0	Exclude	ok	-
BUL16	3084	1	3-Sep-2000	Baetis	14.0	ok	ok	-
BUL16	3084	1	3-Sep-2000	Drunella	2.0	ok	ok	-
BUL16	3084	1	3-Sep-2000	Epeorus	2.0	ok	ok	-
BUL16	3084	1	3-Sep-2000	Heptageniidae	9.0	ok	ok	-
BUL16	3084	1	3-Sep-2000	Suwallia	3.0	ok	ok	-
BUL16	3084	1	3-Sep-2000	Zapada	2.0	ok	ok	-
BUL16	3084	1	3-Sep-2000	Taeniopterygidae	2.0	ok	ok	-
BUL16	3084	1	3-Sep-2000	Plecoptera	16.0	ok	Exclude	-
BUL16	3084	1	3-Sep-2000	Rhyacophila	3.0	ok	ok	-
BUL16	3084	1	3-Sep-2000	Trichoptera	1.0	ok	Exclude	-
BUL16	3084	1	3-Sep-2000	Arachnida	6.0	ok	Exclude	-
BUL16	3084	1	3-Sep-2000	Deuterophlebia	2.0	ok	ok	-
BUL16	3084	1	3-Sep-2000	Chironomidae	53.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
BUL16	3084	1	3-Sep-2000	Turbellaria	4.0	Exclude	Exclude	-
BUL16	3085	2	3-Sep-2000	<i>Ameletus</i>	3.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	<i>Baetis</i>	28.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	<i>Drunella</i>	4.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	<i>Serratella</i>	1.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	Ephemerellidae	3.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	<i>Paraleptophlebia</i>	4.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	<i>Epeorus</i>	4.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	<i>Rhithrogena</i>	8.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	Chloroperlidae	2.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	Leuctridae	6.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	<i>Zapada</i>	2.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	<i>Taenionema</i>	2.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	Plecoptera	7.0	ok	Exclude	-
BUL16	3085	2	3-Sep-2000	Hydropsychidae	1.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	<i>Glossosoma</i>	1.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	Arachnida	5.0	ok	Exclude	-
BUL16	3085	2	3-Sep-2000	<i>Pericoma</i>	3.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	Chironomidae	47.0	ok	ok	-
BUL16	3085	2	3-Sep-2000	Turbellaria	6.0	Exclude	Exclude	-
BUL16	3085	2	3-Sep-2000	Arthropoda	1.0	Exclude	Exclude	-
BUL16	3086	3	3-Sep-2000	<i>Baetis</i>	7.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	<i>Drunella</i>	3.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	Ephemeroptera	8.0	ok	Exclude	-
BUL16	3086	3	3-Sep-2000	<i>Epeorus</i>	2.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	<i>Rhithrogena</i>	3.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	Heptageniidae	11.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	<i>Sweltsa</i>	5.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	Leuctridae	2.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	<i>Zapada</i>	2.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	Taeniopterygidae	7.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	Plecoptera	7.0	ok	Exclude	-
BUL16	3086	3	3-Sep-2000	<i>Rhyacophila</i>	1.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	Psychodidae	1.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	<i>Deuterophlebia</i>	1.0	ok	ok	-
BUL16	3086	3	3-Sep-2000	Turbellaria	3.0	Exclude	Exclude	-
BUL16	3086	3	3-Sep-2000	Arthropoda	1.0	Exclude	Exclude	-
BUL16	3086	3	3-Sep-2000	Clitellata	2.0	ok	Exclude	-
BUL16	9923	1	23-Aug-2006	<i>Hygrobates</i>	8.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Sperchon</i>	28.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Wandesia</i>	3.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Lebertia</i>	36.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Ameletus</i>	31.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Acentrella</i>	5.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Baetis</i>	98.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Drunella coloradensis</i>	3.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Drunella doddsii</i>	15.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Serratella</i>	1.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Ephemerella</i>	8.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Paraleptophlebia</i>	1.0	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
BUL16	9923	1	23-Aug-2006	<i>Cinygmula</i>	56.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Epeorus deceptivus</i>	8.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Rhithrogena</i>	11.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	Heptageniidae	72.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	Enchytraeidae	3.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Suwallia</i>	19.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Despaxia</i>	4.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Zapada</i>	5.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	Perlodidae	1.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Kogotus</i>	2.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	Capniidae	10.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Parapsyche</i>	1.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Rhyacophila</i>	20.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	Trichoptera	1.0	ok	Exclude	-
BUL16	9923	1	23-Aug-2006	<i>Amiocentrus</i>	11.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Glossosoma</i>	5.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Chelifera</i>	5.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Pericoma</i>	11.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Bezzia/Palpomyia</i>	4.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Antocha</i>	5.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Rhabdomastix</i>	1.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	Chironomidae	168.0	ok	ok	-
BUL16	9923	1	23-Aug-2006	<i>Polycelis</i>	5.0	Exclude	ok	-
BUL16	9923	1	23-Aug-2006	Ostracoda	5.0	Exclude	Exclude	-
BUL16	9923	1	23-Aug-2006	<i>Heterlimnius</i>	1.0	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Sperchon</i>	88.0	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Lebertia</i>	9.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Acentrella</i>	7.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Baetis bicaudatus</i>	11.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	Ephemerellidae	359.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Paraleptophlebia</i>	7.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Rhithrogena</i>	134.0	ok	ok	-
BUL73	13002	1	26-Sep-2007	Heptageniidae	31.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Sweltsa</i>	1.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	Chloroperlidae	7.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Suwallia</i>	1.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Zapada cinctipes</i>	3.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	Perlidae	1.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	Perlodidae	18.0	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Taenionema</i>	149.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	Capniidae	97.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Yoraperla</i>	7.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Pteronarcys</i>	7.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Arctopsyche</i>	175.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Hydropsyche</i>	163.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	Hydropsychidae	590.0	ok	ok	-
BUL73	13002	1	26-Sep-2007	Limnephilidae	7.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Glossosoma</i>	7.9	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Hemerodromia</i>	1.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Chelifera/Metachela</i>	9.9	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
BUL73	13002	1	26-Sep-2007	<i>Prosimulium</i>	51.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Agathon</i>	1.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	<i>Hexatoma</i>	3.8	ok	ok	-
BUL73	13002	1	26-Sep-2007	Chironomidae	182.0	ok	ok	-
BUL73	13002	1	26-Sep-2007	Clitellata	93.8	ok	Exclude	-
WQS01	fb19-127-022	1	25-Aug-2019	Insecta indet. (terrestrial)	7.1	Exclude	Exclude	Terrestrial Diptera
WQS01	fb19-127-022	1	25-Aug-2019	<i>Hygrobates</i> sp.	35.7	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Sperchon</i> sp.	42.9	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Entomobryidae indet.	7.1	Exclude	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Micropsectra</i> sp.	28.6	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Tanytarsus</i> sp.	28.6	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Pagastia</i> sp.	28.6	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Diamesinae indet.	7.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	207.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	50.0	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Hydrobaenus</i> sp.	21.4	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Orthocladiinae indet.	7.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Parorthocladius</i> sp.	7.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Thienemanniella</i> sp.	7.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Toetenia</i> sp.	150.0	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Chironomidae indet.	207.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Neoplasta</i> sp.	28.6	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Pericomaini indet.	14.3	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS01	fb19-127-022	1	25-Aug-2019	<i>Dicranota</i> sp.	28.6	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Baetidae indet.	135.7	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Baetis rhodani</i> group	142.9	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Baetis</i> sp.	92.9	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Drunella doddsii</i>	57.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Drunella coloradensis</i>	28.6	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Ephemere llidae indet.	150.0	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Cinygmula</i> sp.	14.3	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Epeorus deceptivus</i>	85.7	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Epeorus grandis</i> group	7.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Heptageniidae indet.	121.4	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Rhithrogena</i> sp.	35.7	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Capniidae indet.	42.9	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Visoka cataractae</i>	14.3	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Zapada cinctipes</i>	21.4	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Zapada oregonensis</i> group	21.4	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Zapada</i> sp.	64.3	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Perlodidae indet.	28.6	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Taenionema</i> sp.	107.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Glossosoma</i> sp.	28.6	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Hydropsychidae indet.	42.9	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Rhyacophila betteni</i> group	21.4	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Rhyacophila brunnea/vemna</i> group	7.1	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	<i>Rhyacophila</i> sp.	28.6	ok	ok	-
WQS01	fb19-127-022	1	25-Aug-2019	Trichoptera indet.	14.3	ok	Exclude	-
WQS01	fb19-127-023	2	25-Aug-2019	Enchytraeidae indet.	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Hygrobates</i> sp.	62.1	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS01	fb19-127-023	2	25-Aug-2019	<i>Lebertia</i> sp.	6.9	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Sperchon</i> sp.	17.2	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	Tanytarsini indet.	24.1	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Tanytarsus</i> sp.	37.9	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Pagastia</i> sp.	10.3	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Pseudodiamesa</i> sp.	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Brillia</i> sp.	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Corynoneura</i> sp.	6.9	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Cricotopus</i> / <i>Orthocladius</i> sp. complex	58.6	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	51.7	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Hydrobaenus</i> sp.	86.2	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Parorthocladius</i> sp.	13.8	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rheocricotopus</i> sp.	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Thienemanniella</i> sp.	6.9	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Tvetenia</i> sp.	62.1	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	Chironomidae indet.	69.0	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Neoplasta</i> sp.	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	Pericomaini indet.	6.9	ok	ok	Previously identified as <i>Pericoma</i> / <i>Telmatoscopus</i> sp. in 2017
WQS01	fb19-127-023	2	25-Aug-2019	<i>Dicranota</i> sp.	6.9	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Ameletus</i> sp.	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Baetis rhodani</i> group	37.9	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Baetis</i> sp.	58.6	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Drunella doddsii</i>	17.2	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Drunella coloradensis</i>	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	Ephemerellidae indet.	172.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Cinygmula</i> sp.	6.9	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Epeorus deceptivus</i>	27.6	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	Heptageniidae indet.	55.2	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhithrogena</i> sp.	10.3	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	Ephemeroptera indet.	6.9	ok	Exclude	Damaged, anterior only
WQS01	fb19-127-023	2	25-Aug-2019	Capniidae indet.	48.3	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Zapada cinctipes</i>	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Zapada oregonensis</i> group	13.8	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Zapada columbiana</i>	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Zapada</i> sp.	41.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	Perlodidae indet.	13.8	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Taenionema</i> sp.	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	Plecoptera indet.	3.4	ok	Exclude	-
WQS01	fb19-127-023	2	25-Aug-2019	Hydropsychidae indet.	6.9	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhyacophila betteni</i> group	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhyacophila</i> sp.	13.8	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhyacophila vagrita</i> group	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	<i>Rhyacophila vofixa</i> group	3.4	ok	ok	-
WQS01	fb19-127-023	2	25-Aug-2019	Platyhelminthes indet.	3.4	Exclude	Exclude	-
WQS01	fb19-127-024	3	25-Aug-2019	Nematoda indet.	11.8	Exclude	Exclude	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Aturus</i> sp.	5.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Hygrobates</i> sp.	129.4	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Sperchon</i> sp.	52.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Micropsectra</i> / <i>Tanytarsus</i> sp. complex	5.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Stempellinella</i> sp.	35.3	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS01	fb19-127-024	3	25-Aug-2019	Tanytarsini indet.	47.1	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Tanytarsus</i> sp.	111.8	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Pagastia</i> sp.	5.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	300.0	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	64.7	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Hydrobaenus</i> sp.	194.1	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Orthoclaadiinae indet.	11.8	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Parorthocladius</i> sp.	17.6	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Tvetenia</i> sp.	135.3	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Chironomidae indet.	135.3	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Pericomaini indet.	23.5	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS01	fb19-127-024	3	25-Aug-2019	<i>Dicranota</i> sp.	29.4	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Ameletus</i> sp.	23.5	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Baetidae indet.	170.6	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Baetis</i> sp.	252.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Drunella doddsii</i>	17.6	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Drunella coloradensis</i>	11.8	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Ephemerellidae indet.	235.3	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Serratella</i> sp.	5.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Cinygmula</i> sp.	11.8	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Epeorus deceptivus</i>	11.8	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Heptageniidae indet.	117.6	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Rhithrogena</i> sp.	41.2	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Leptophlebiidae indet.	5.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Capniidae indet.	29.4	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Haploperla</i> sp.	5.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Leuctridae indet.	11.8	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Nemourinae indet.	94.1	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Zapada cinctipes</i>	11.8	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Zapada oregonensis</i> group	11.8	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Taenionema</i> sp.	35.3	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Plecoptera indet.	23.5	ok	Exclude	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Glossosoma</i> sp.	5.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Hydropsychidae indet.	17.6	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Rhyacophila atrata</i> complex	5.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Rhyacophila hyalinata</i> group	5.9	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Rhyacophila</i> sp.	29.4	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Rhyacophila vetina</i> complex	11.8	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	<i>Rhyacophila vofixa</i> group	17.6	ok	ok	-
WQS01	fb19-127-024	3	25-Aug-2019	Trichoptera indet.	17.6	ok	Exclude	-
WQS01	fb19-127-024	3	25-Aug-2019	Platyhelminthes indet.	5.9	Exclude	Exclude	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Lebertia</i> sp.	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Sperchon</i> sp.	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Acari indet.	6.3	ok	Exclude	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Micropsectra</i> sp.	31.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Stempellinella</i> sp.	25.0	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Tanytarsus</i> sp.	43.8	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Pseudodiamesa</i> sp.	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Brillia</i> sp.	12.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Corynoneura</i> sp.	6.3	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS02	fb19-127-019	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	81.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	18.8	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Hydrobaenus</i> sp.	37.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Orthocladiinae indet.	31.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rheocricotopus</i> sp.	212.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Tvetenia</i> sp.	31.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Chironomidae indet.	106.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Neoplasta</i> sp.	12.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Pericomaini indet.	50.0	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS02	fb19-127-019	1	25-Aug-2019	<i>Hexatoma</i> sp.	1.0	ok	ok	Macro > 1.5 cm
WQS02	fb19-127-019	1	25-Aug-2019	<i>Ameletus</i> sp.	68.8	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Baetis rhodani</i> group	25.0	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Baetis</i> sp.	237.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Drunella doddsii</i>	12.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Ephemerellidae indet.	200.0	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Serratella</i> sp.	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Cinygmula</i> sp.	12.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Epeorus grandis</i> group	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Heptageniidae indet.	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhithrogena</i> sp.	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Capniidae indet.	37.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Chloroperlidae indet.	12.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Zapada cinctipes</i>	168.8	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Zapada</i> sp.	162.5	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Perlodidae indet.	43.8	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Taenionema</i> sp.	100.0	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Plecoptera indet.	62.5	ok	Exclude	-
WQS02	fb19-127-019	1	25-Aug-2019	Hydropsychidae indet.	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhyacophila atrata</i> complex	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhyacophila brunnea/vemna</i> group	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhyacophila</i> sp.	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	<i>Rhyacophila vofixa</i> group	6.3	ok	ok	-
WQS02	fb19-127-019	1	25-Aug-2019	Trichoptera indet.	18.8	ok	Exclude	-
WQS02	fb19-127-019	1	25-Aug-2019	Platyhelminthes indet.	6.3	Exclude	Exclude	-
WQS02	fb19-127-020	2	25-Aug-2019	Nematoda indet.	5.9	Exclude	Exclude	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Protzia</i> sp.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Hygrobates</i> sp.	11.8	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Sperchon</i> sp.	58.8	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Micropsectra</i> sp.	47.1	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Stempellinella</i> sp.	29.4	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Tanytarsus</i> sp.	35.3	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Pagastia</i> sp.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Brillia</i> sp.	23.5	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Corynoneura</i> sp.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	188.2	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Hydrobaenus</i> sp.	23.5	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Orthocladiinae indet.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Psectrocladius</i> sp.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Thienemanniella</i> sp.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Tvetenia</i> sp.	105.9	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS02	fb19-127-020	2	25-Aug-2019	Chironomidae indet.	82.4	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Neoplasta</i> sp.	11.8	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Pericomaini indet.	58.8	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS02	fb19-127-020	2	25-Aug-2019	Simuliidae indet.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Hexatoma</i> sp.	5.9	ok	ok	Macro > 1.5 cm
WQS02	fb19-127-020	2	25-Aug-2019	<i>Dicranota</i> sp.	11.8	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Diptera indet.	5.9	ok	Exclude	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Ameletus</i> sp.	47.1	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Baetidae indet.	58.8	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Baetis rhodani</i> group	47.1	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Baetis</i> sp.	270.6	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Drunella doddsii</i>	17.6	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Drunella</i> sp.	5.9	ok	Exclude	Damaged
WQS02	fb19-127-020	2	25-Aug-2019	Ephemerellidae indet.	164.7	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Serratella</i> sp.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Cinygmula</i> sp.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Epeorus deceptivus</i>	11.8	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Heptageniidae indet.	47.1	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Leptophlebiidae indet.	11.8	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Neoleptophlebia</i> sp.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Capniidae indet.	29.4	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Chloroperlidae indet.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Leuctridae indet.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Zapada cinctipes</i>	182.4	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Zapada oregonensis</i> group	35.3	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Zapada</i> sp.	82.4	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Perlodidae indet.	58.8	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Taenionema</i> sp.	88.2	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Plecoptera indet.	5.9	ok	Exclude	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Rhyacophila betteni</i> group	11.8	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Rhyacophila</i> sp.	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	<i>Rhyacophila vofixa</i> group	5.9	ok	ok	-
WQS02	fb19-127-020	2	25-Aug-2019	Trichoptera indet.	5.9	ok	Exclude	-
WQS02	fb19-127-020	2	25-Aug-2019	Platyhelminthes indet.	5.9	Exclude	Exclude	-
WQS02	fb19-127-021	3	25-Aug-2019	Egg/egg mass	30.0	Exclude	Exclude	-
WQS02	fb19-127-021	3	25-Aug-2019	Oribatida indet.	10.0	ok	Exclude	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Hygrobates</i> sp.	20.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Lebertia</i> sp.	20.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Sperchon</i> sp.	30.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Ceratopogoninae indet.	30.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Tanytarsus</i> sp.	230.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Brillia</i> sp.	20.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Corynoneura</i> sp.	20.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	140.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	70.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Orthocladiinae indet.	50.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Rheocricotopus</i> sp.	60.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Tvetenia</i> sp.	60.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Chironomidae indet.	80.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Pericomaini indet.	80.0	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS02	fb19-127-021	3	25-Aug-2019	<i>Dicranota</i> sp.	30.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Ameletus</i> sp.	40.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Baetidae indet.	10.0	ok	Exclude	Damaged
WQS02	fb19-127-021	3	25-Aug-2019	<i>Baetis rhodani</i> group	90.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Baetis</i> sp.	610.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Drunella doddsii</i>	60.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Drunella coloradensis</i>	20.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Ephemerellidae indet.	240.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Cinygmula</i> sp.	10.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Epeorus deceptivus</i>	50.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Heptageniidae indet.	110.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Rhithrogena</i> sp.	120.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Neoleptophlebia</i> sp.	10.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Capniidae indet.	160.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Chloroperlidae indet.	30.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Zapada cinctipes</i>	220.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Zapada oregonensis</i> group	10.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Zapada columbiana</i>	20.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Zapada</i> sp.	150.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Perlodidae indet.	90.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Taenionema</i> sp.	150.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Hydropsychidae indet.	10.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	<i>Rhyacophila</i> sp.	20.0	ok	ok	-
WQS02	fb19-127-021	3	25-Aug-2019	Trichoptera indet.	60.0	ok	Exclude	-
WQS02	fb19-127-021	3	25-Aug-2019	Platyhelminthes indet.	10.0	Exclude	Exclude	-
WQS04B	fb19-127-016	1	27-Aug-2019	Enchytraeidae indet.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Atractides</i> sp.	6.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Lebertia</i> sp.	6.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Sperchon</i> sp.	15.2	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Ceratopogoninae indet.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Micropsectra/Tanytarsus</i> sp. complex	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Paratanytarsus</i> sp.	6.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Stempellinella</i> sp.	9.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Tanytarsus</i> sp.	42.4	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Brillia</i> sp.	6.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Corynoneura</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	78.8	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Eukiefferiella</i> sp.	9.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Hydrobaenus</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Orthoclaadiinae indet.	18.2	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Parorthocladius</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Rheocricotopus</i> sp.	42.4	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Thienemanniella</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Tvetenia</i> sp.	30.3	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Chironomidae indet.	27.3	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Wiedemannia</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Neoplasta</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Pericomaini indet.	21.2	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS04B	fb19-127-016	1	27-Aug-2019	Simuliidae indet.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Ameletus</i> sp.	54.5	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Ameletus validus</i>	57.6	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Baetis rhodani</i> group	51.5	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Baetis</i> sp.	160.6	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Ephemerellidae indet.	6.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Epeorus deceptivus</i>	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Epeorus</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Heptageniidae indet.	39.4	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Rhithrogena</i> sp.	51.5	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Neoleptophlebia</i> sp.	9.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Capniidae indet.	81.8	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Suwallia</i> sp.	9.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Chloroperlidae indet.	6.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Paraleuctra</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Zapada cinctipes</i>	63.6	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Zapada oregonensis</i> group	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Zapada</i> sp.	15.2	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Perlodidae indet.	9.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Taenionema</i> sp.	9.1	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Plecoptera indet.	3.0	ok	Exclude	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Brachycentrus</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Ecclisomyia</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Rhyacophila</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	<i>Rhyacophila vofixa</i> group	3.0	ok	ok	-
WQS04B	fb19-127-016	1	27-Aug-2019	Trichoptera indet.	15.2	ok	Exclude	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Acari indet. (terrestrial)	4.0	Exclude	Exclude	Terrestrial
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Insecta indet. (terrestrial)	4.0	Exclude	Exclude	Terrestrial
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Nais communis</i>	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Atractides</i> sp.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Lebertia</i> sp.	32.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Sperchon</i> sp.	24.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Acari indet.	12.0	ok	Exclude	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Ceratopogoninae indet.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Micropsectra</i> sp.	8.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Stempellinella</i> sp.	20.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Tanytarsus</i> sp.	8.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Brillia</i> sp.	8.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Corynoneura</i> sp.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	80.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	40.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Orthocladiinae indet.	20.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Tvetenia</i> sp.	12.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Pentaneurini indet.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Chironomidae indet.	36.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Wiedemannia</i> sp.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Neoplasta</i> sp.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Empididae indet.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Simuliidae indet.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Dicranota</i> sp.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Tipulidae indet.	8.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Ameletus similior</i>	12.0	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Ameletus validus</i>	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Acentrella</i> sp.	8.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Baetis rhodani</i> group	116.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Baetis</i> sp.	468.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Drunella doddsii</i>	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Drunella coloradensis</i>	8.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Ephemere llidae indet.	36.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Serratella</i> sp.	16.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Cinygmula</i> sp.	12.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Epeorus deceptivus</i>	24.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Heptageniidae indet.	12.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Rhithrogena</i> sp.	132.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Neoleptophlebia</i> sp.	16.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Capniidae indet.	8.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Suwallia</i> sp.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Chloroperlidae indet.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Visoka cataractae</i>	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Zapada cinctipes</i>	20.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Zapada</i> sp.	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Perlodidae indet.	16.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Taenionema</i> sp.	12.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Amiocentrus</i> sp.	8.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Hydropsychidae indet.	12.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Rhyacophila atrata</i> complex	4.0	ok	ok	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	<i>Rhyacophila</i> sp.	12.0	ok	ok	larva starting to pupate
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Trichoptera indet.	4.0	ok	Exclude	-
WQS04B-FD	fb19-127-025	1	25-Aug-2019	Platyhelminthes indet.	12.0	Exclude	Exclude	-
WQS04B	fb19-127-017	2	27-Aug-2019	Egg/egg mass	6.5	Exclude	Exclude	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Nais communis</i>	3.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Enchytraeidae indet.	3.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Lebertia</i> sp.	12.9	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Sperchon</i> sp.	16.1	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Acari indet.	6.5	ok	Exclude	-
WQS04B	fb19-127-017	2	27-Aug-2019	Ceratopogoninae indet.	6.5	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Stempellinella</i> sp.	3.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Tanytarsus</i> sp.	48.4	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Brillia</i> sp.	9.7	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	25.8	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Eukiefferiella</i> sp.	9.7	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Orthocladiinae indet.	3.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Tvetenia</i> sp.	22.6	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Chironomidae indet.	61.3	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Neoplasta</i> sp.	3.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Pericomaini indet.	25.8	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Simulium</i> sp.	35.5	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Simuliidae indet.	16.1	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Ameletus</i> sp.	41.9	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Baetis rhodani</i> group	83.9	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Baetis</i> sp.	283.9	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Drunella coloradensis</i>	6.5	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Cinygmula</i> sp.	6.5	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Epeorus deceptivus</i>	16.1	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Epeorus longimanus</i>	3.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Heptageniidae indet.	12.9	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhithrogena</i> sp.	9.7	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Neoleptophlebia</i> sp.	9.7	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Ephemeroptera indet.	6.5	ok	Exclude	Damaged, anterior only
WQS04B	fb19-127-017	2	27-Aug-2019	Capniidae indet.	64.5	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Leuctridae indet.	3.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Zapada cinctipes</i>	74.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Zapada oregonensis</i> group	6.5	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Zapada</i> sp.	16.1	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Perlodidae indet.	6.5	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Taenionema</i> sp.	29.0	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Plecoptera indet.	3.2	ok	Exclude	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Amiocentrus</i> sp.	19.4	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhyacophila atrata</i> complex	9.7	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhyacophila brunnea/vemna</i> group	6.5	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhyacophila nevadensis</i> group	3.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	<i>Rhyacophila</i> sp.	3.2	ok	ok	-
WQS04B	fb19-127-017	2	27-Aug-2019	Trichoptera indet.	6.5	ok	Exclude	-
WQS04B	fb19-127-017	2	27-Aug-2019	Platyhelminthes indet.	6.5	Exclude	Exclude	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Egg/egg mass	14.8	Exclude	Exclude	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Hygrobates</i> sp.	11.1	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Lebertia</i> sp.	25.9	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Sperchon</i> sp.	18.5	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Ceratopogoninae indet.	7.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Polypedilum</i> sp.	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Tanytarsus</i> sp.	22.2	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Diamesinae indet.	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Brillia</i> sp.	25.9	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	307.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	44.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Orthocladiinae indet.	40.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Orthocladius lignicola</i>	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Thienemanniella</i> sp.	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Chironomidae indet.	25.9	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Clinocera</i> sp.	11.1	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Wiedemannia</i> sp.	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Simuliidae indet.	7.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Hexatoma</i> sp.	1.0	ok	ok	Macro > 1.5 cm
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Dicranota</i> sp.	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Ameletus</i> sp.	18.5	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Baetis rhodani</i> group	77.8	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Baetis</i> sp.	292.6	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Drunella doddsii</i>	7.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Drunella coloradensis</i>	7.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Ephemerellidae indet.	22.2	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Serratella</i> sp.	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Epeorus deceptivus</i>	11.1	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Heptageniidae indet.	63.0	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Neoleptophlebia</i> sp.	7.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Ephemeroptera indet.	3.7	ok	Exclude	Damaged
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Capniidae indet.	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Haploperla</i> sp.	11.1	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Chloroperlidae indet.	7.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Zapada cinctipes</i>	11.1	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Zapada</i> sp.	14.8	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Kogotus</i> sp.	1.0	ok	ok	Macro > 1.5 cm
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Perlodidae indet.	7.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Taenionema</i> sp.	11.1	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Amiocentrus</i> sp.	7.4	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Brachycentridae indet.	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	<i>Rhyacophila</i> sp.	3.7	ok	ok	-
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Trichoptera indet.	3.7	ok	Exclude	Damaged
WQS04B-FD	fb19-127-026	2	25-Aug-2019	Platyhelminthes indet.	7.4	Exclude	Exclude	-
WQS04B	fb19-127-018	3	27-Aug-2019	Egg/egg mass	6.1	Exclude	Exclude	-
WQS04B	fb19-127-018	3	27-Aug-2019	Insecta indet. (terrestrial)	3.0	Exclude	Exclude	Terrestrial
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Aturus</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Protzia</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Atractides</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Hygrobates</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Lebertia</i> sp.	27.3	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Sperchon</i> sp.	57.6	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Acari indet.	3.0	ok	Exclude	-
WQS04B	fb19-127-018	3	27-Aug-2019	Ceratopogoninae indet.	15.2	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Rheotanytarsus</i> sp.	18.2	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Stempellinella</i> sp.	9.1	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Tanytarsus</i> sp.	45.5	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Brillia</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Cricotopus</i> / <i>Orthocladius</i> sp. complex	72.7	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Eukiefferiella</i> sp.	27.3	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Heleniella</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Orthocladiinae indet.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Rheocricotopus</i> sp.	9.1	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Tvetenia</i> sp.	12.1	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Chironomidae indet.	39.4	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Clinocera</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Wiedemannia</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Neoplasta</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Pericomaini indet.	9.1	ok	ok	Previously identified as <i>Pericoma</i> / <i>Telmatoscopus</i> sp. in 2017
WQS04B	fb19-127-018	3	27-Aug-2019	Simuliidae indet.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Dicranota</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Tipulidae indet.	3.0	ok	Exclude	Damaged
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Ameletus</i> sp.	12.1	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Ameletus validus</i>	81.8	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Baetis rhodani</i> group	42.4	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Baetis</i> sp.	130.3	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Drunella doddsii</i>	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Ephemerellidae indet.	18.2	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Serratella</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Epeorus deceptivus</i>	24.2	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Heptageniidae indet.	27.3	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Rhithrogena</i> sp.	33.3	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Leptophlebiidae indet.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Neoleptophlebia</i> sp.	12.1	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Capniidae indet.	63.6	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Suwallia</i> sp.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Sweltsa</i> sp.	6.1	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Chloroperlidae indet.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Zapada cinctipes</i>	66.7	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Zapada</i> sp.	15.2	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Perlodidae indet.	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Taenionema</i> sp.	18.2	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Plecoptera indet.	3.0	ok	Exclude	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Amiocentrus</i> sp.	6.1	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Lepidostoma</i> sp.	9.1	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	<i>Rhyacophila vofixa</i> group	3.0	ok	ok	-
WQS04B	fb19-127-018	3	27-Aug-2019	Trichoptera indet.	3.0	ok	Exclude	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Acari indet. (terrestrial)	2.9	Exclude	Exclude	Terrestrial
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Lebertia</i> sp.	48.6	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Sperchon</i> sp.	20.0	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Ceratopogoninae indet.	2.9	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Stempellinella</i> sp.	8.6	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Tanytarsus</i> sp.	14.3	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Diamesa</i> sp.	2.9	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Brillia</i> sp.	5.7	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	137.1	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	25.7	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Orthocladiinae indet.	17.1	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Parorthocladius</i> sp.	8.6	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Toetenia</i> sp.	14.3	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Chironomidae indet.	17.1	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Empididae indet.	2.9	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Simuliidae indet.	5.7	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Tipulidae indet.	2.9	ok	Exclude	Damaged
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Ameletus</i> sp.	5.7	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Ameletus validus</i>	25.7	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Acentrella</i> sp.	5.7	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Baetidae indet.	8.6	ok	Exclude	Damaged
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Baetis rhodani</i> group	71.4	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Baetis</i> sp.	302.9	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Drunella doddsii</i>	2.9	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Ephemerellidae indet.	28.6	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Serratella</i> sp.	11.4	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Cinygmula</i> sp.	11.4	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Heptageniidae indet.	5.7	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Rhithrogena</i> sp.	131.4	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Neoleptophlebia</i> sp.	8.6	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Capniidae indet.	20.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Haploperla</i> sp.	17.1	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Paraperla</i> sp.	11.4	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Chloroperlidae indet.	2.9	ok	Exclude	Damaged
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Zapada cinctipes</i>	17.1	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Megarcys</i> sp.	2.9	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Kogotus</i> sp.	8.6	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Perlodidae indet.	8.6	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Plecoptera indet.	5.7	ok	Exclude	Damaged
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Brachycentrus</i> sp.	5.7	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Hydropsychidae indet.	2.9	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Rhyacophila brunnea/vemna</i> group	2.9	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	<i>Rhyacophila</i> sp.	2.9	ok	ok	-
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Trichoptera indet.	2.9	ok	Exclude	Damaged
WQS04B-FD	fb19-127-027	3	25-Aug-2019	Platyhelminthes indet.	5.7	Exclude	Exclude	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Hydrozetes</i> sp.	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Limnozetes</i> sp.	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Hygrobates</i> sp.	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Lebertia</i> sp.	10.3	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Sperchon</i> sp.	6.9	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Acari indet.	3.4	ok	Exclude	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Entomobryidae indet.	10.3	Exclude	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Isotomidae indet.	3.4	Exclude	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Neostempellina</i> sp.	6.9	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Tanytarsini indet.	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Tanytarsus</i> sp.	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Pseudodiamesa</i> sp.	27.6	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Brillia</i> sp.	31.0	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Cricotopus/Orthocladius</i> sp. complex	17.2	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Heleniella</i> sp.	10.3	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Metriocnemus</i> sp.	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Orthocladiinae indet.	13.8	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Orthocladius lignicola</i>	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Parametriocnemus</i> sp.	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Rheocricotopus</i> sp.	31.0	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Chironomidae indet.	141.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Dicranota</i> sp.	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Diptera indet.	3.4	ok	Exclude	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Ameletus similior</i>	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Baetis</i> sp.	65.5	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Ephemerellidae indet.	17.2	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Cinygmula</i> sp.	10.3	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Epeorus grandis</i> group	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Epeorus</i> sp.	27.6	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Heptageniidae indet.	31.0	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Rhithrogena</i> sp.	6.9	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Ephemeroptera indet.	3.4	ok	Exclude	Damaged, anterior only
WQS03-DS	fb19-127-058	1	4-Oct-2019	Capniidae indet.	203.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Sweltsa</i> sp.	13.8	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Zapada cinctipes</i>	27.6	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Zapada oregonensis</i> group	17.2	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Zapada</i> sp.	27.6	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Taenionema</i> sp.	203.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Plecoptera indet.	20.7	ok	Exclude	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Leptoceridae indet.	27.6	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Limnephilidae indet.	75.9	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Rhyacophila betteni</i> group	3.4	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	<i>Rhyacophila</i> sp.	10.3	ok	ok	-
WQS03-DS	fb19-127-058	1	4-Oct-2019	Platyhelminthes indet.	13.8	Exclude	Exclude	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Hygrobates</i> sp.	5.3	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Pseudodiamesa</i> sp.	2.6	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Brillia</i> sp.	42.1	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Parorthocladius</i> sp.	5.3	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Rheocricotopus</i> sp.	10.5	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	Chironomidae indet.	13.2	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Oreogeton</i> sp.	2.6	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Dicranota</i> sp.	5.3	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Tipula</i> sp.	5.3	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Ameletus similior</i>	15.8	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Ameletus</i> sp.	7.9	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Baetis</i> sp.	5.3	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Drunella doddsii</i>	2.6	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	Ephemerellidae indet.	44.7	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Cinygmula</i> sp.	7.9	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Epeorus</i> sp.	2.6	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Heptagenia</i> sp.	10.5	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	Heptageniidae indet.	47.4	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Rhithrogena</i> sp.	7.9	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	Capniidae indet.	250.0	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Sweltsa</i> sp.	18.4	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	Chloroperlidae indet.	2.6	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Zapada cinctipes</i>	44.7	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Zapada oregonensis</i> group	5.3	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Zapada columbiana</i>	2.6	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Zapada</i> sp.	23.7	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Taenionema</i> sp.	84.2	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	Plecoptera indet.	31.6	ok	Exclude	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Glossosoma</i> sp.	7.9	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	Limnephilidae indet.	89.5	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Rhyacophila betteni</i> group	2.6	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	<i>Rhyacophila</i> sp.	2.6	ok	ok	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	Trichoptera indet.	7.9	ok	Exclude	-
WQS03-DS	fb19-127-059	2	4-Oct-2019	Platyhelminthes indet.	5.3	Exclude	Exclude	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Insecta indet. (terrestrial)	2.4	Exclude	Exclude	Terrestrial
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Eiseniella tetraedra</i>	2.0	ok	ok	Macro > 1.5 cm
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Hydrozetes</i> sp.	4.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Limnozetes</i> sp.	4.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Macropylina indet.	2.4	ok	Exclude	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Hygrobates</i> sp.	7.3	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Sperchon</i> sp.	4.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Atrichopogon</i> sp.	2.4	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Tanytarsus</i> sp.	4.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Brillia</i> sp.	22.0	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Heleniella</i> sp.	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Metriocnemus</i> sp.	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Orthocladiinae indet.	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Parametriocnemus</i> sp.	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rheocricotopus</i> sp.	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Chironomidae indet.	19.5	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Dicranota</i> sp.	7.3	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Tipula</i> sp.	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Ameletus similior</i>	31.7	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Ameletus</i> sp.	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Baetis rhodani</i> group	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Baetis</i> sp.	31.7	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Drunella doddsii</i>	9.8	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Ephemerellidae indet.	24.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Cinygmula</i> sp.	36.6	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Epeorus</i> sp.	4.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Heptagenia</i> sp.	22.0	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Heptageniidae indet.	82.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rhithrogena</i> sp.	4.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Capniidae indet.	173.2	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Haploperla</i> sp.	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Sweltsa</i> sp.	9.8	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Despaxia augusta</i>	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Zapada cinctipes</i>	22.0	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Zapada oregonensis</i> group	14.6	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Zapada</i> sp.	22.0	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Taenionema</i> sp.	80.5	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Plecoptera indet.	12.2	ok	Exclude	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Glossosoma</i> sp.	14.6	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Hydropsychidae indet.	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Ecclisomyia</i> sp.	4.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Limnephilidae indet.	31.7	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rhyacophila betteni</i> group	4.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rhyacophila brunnea/vemna</i> group	2.4	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	<i>Rhyacophila</i> sp.	4.9	ok	ok	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Trichoptera indet.	2.4	ok	Exclude	-
WQS03-DS	fb19-127-060	3	4-Oct-2019	Platyhelminthes indet.	4.9	Exclude	Exclude	-
WQS18	fb19-127-055	1	4-Oct-2019	Insecta indet. (terrestrial)	2.0	Exclude	Exclude	Terrestrial Diptera
WQS18	fb19-127-055	1	4-Oct-2019	<i>Hygrobates</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Sperchon</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Entomobryidae indet.	2.0	Exclude	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Hypogastruridae indet.	1.0	Exclude	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Isotomidae indet.	1.0	Exclude	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Sminthuridae indet.	1.0	Exclude	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Collembola indet.	1.0	Exclude	Exclude	Damaged
WQS18	fb19-127-055	1	4-Oct-2019	<i>Micropsectra</i> sp.	5.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Neostempellina</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Tanytarsus</i> sp.	5.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS18	fb19-127-055	1	4-Oct-2019	<i>Pseudodiamesa</i> sp.	51.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Brillia</i> sp.	5.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Heleniella</i> sp.	3.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Heterotrissocladius marcidus</i>	7.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Parorthocladius</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Pentaneurini indet.	2.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Chironomidae indet.	8.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Simuliidae indet.	2.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Dicranota</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Tipulidae indet.	1.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Ameletus</i> sp.	9.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Baetis</i> sp.	9.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Drunella doddsii</i>	1.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Ephemerellidae indet.	12.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Cinygmula</i> sp.	24.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Epeorus</i> sp.	3.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Heptageniidae indet.	23.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Rhithrogena</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Capniidae indet.	120.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Sweltsa</i> sp.	10.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Chloroperlidae indet.	1.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Zapada cinctipes</i>	4.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Zapada columbiana</i>	3.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Taenionema</i> sp.	7.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Plecoptera indet.	8.0	ok	Exclude	Damaged
WQS18	fb19-127-055	1	4-Oct-2019	<i>Lepidostoma</i> sp.	16.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	<i>Rhyacophila</i> sp.	7.0	ok	ok	-
WQS18	fb19-127-055	1	4-Oct-2019	Trichoptera indet.	14.0	ok	Exclude	-
WQS18	fb19-127-055	1	4-Oct-2019	Arachnida indet. (terrestrial)	1.0	Exclude	Exclude	Terrestrial pseudoscorpion
WQS18	fb19-127-056	2	4-Oct-2019	<i>Henlea</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Hydrozetes</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Oribatida indet.	1.0	ok	Exclude	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Hygrobates</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Lebertia</i> sp.	3.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Entomobryidae indet.	3.0	Exclude	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Micropsectra</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Neostempellina</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Tanytarsini indet.	7.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Tanytarsus</i> sp.	11.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Diamesa</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Pseudodiamesa</i> sp.	14.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Brillia</i> sp.	14.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Heleniella</i> sp.	4.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Heterotrissocladius marcidus</i>	3.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Orthocladiinae indet.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Parametriocnemus</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Monodiamesa</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Pentaneurini indet.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Procladius</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Chironomidae indet.	16.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS18	fb19-127-056	2	4-Oct-2019	<i>Oreogeton</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Empididae indet.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Simuliidae indet.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Tipula</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Tipulidae indet.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Ameletus similior</i>	18.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Ameletus</i> sp.	2.0	ok	Exclude	Damaged
WQS18	fb19-127-056	2	4-Oct-2019	<i>Baetis rhodani</i> group	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Baetis</i> sp.	12.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Ephemerellidae indet.	13.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Cinygmula</i> sp.	17.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Epeorus grandis</i> group	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Epeorus</i> sp.	5.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Heptagenia</i> sp.	6.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Heptageniidae indet.	12.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhithrogena</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Capniidae indet.	47.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Sweltsa</i> sp.	8.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Chloroperlidae indet.	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Zapada cinctipes</i>	7.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Zapada oregonensis</i> group	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Zapada</i> sp.	8.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Taenionema</i> sp.	14.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Plecoptera indet.	8.0	ok	Exclude	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Glossosoma</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Lepidostoma</i> sp.	4.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Ecclisomyia</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Psychoglypha</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Limnephilidae indet.	36.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhyacophila atrata</i> complex	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhyacophila betteni</i> group	6.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhyacophila</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	<i>Rhyacophila vofixa</i> group	1.0	ok	ok	-
WQS18	fb19-127-056	2	4-Oct-2019	Trichoptera indet.	7.0	ok	Exclude	-
WQS18	fb19-127-057	3	4-Oct-2019	Enchytraeidae indet.	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Oribatida indet.	5.0	ok	Exclude	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Hygrobates</i> sp.	4.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Lebertia</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Sperchon</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Isotomidae indet.	4.0	Exclude	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Neostempellina</i> sp.	3.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Tanytarsini indet.	6.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Tanytarsus</i> sp.	9.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Diamesa</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Pseudodiamesa</i> sp.	35.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Brillia</i> sp.	20.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Heleniella</i> sp.	3.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Heterotrissocladius marcidus</i>	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Orthoclaadiinae indet.	3.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rheocricotopus</i> sp.	11.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS18	fb19-127-057	3	4-Oct-2019	<i>Toetenia</i> sp.	4.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Pentaneurini indet.	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Procladius</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Chironomidae indet.	18.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Neoplasta</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Oreogeton</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Simuliidae indet.	2.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Dicranota</i> sp.	8.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Eloeophila</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Ameletus similior</i>	10.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Baetis</i> sp.	8.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Drunella dodsii</i>	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Ephemerellidae indet.	16.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Cinygmula</i> sp.	12.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Epeorus</i> sp.	4.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Heptagenia</i> sp.	2.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Heptageniidae indet.	5.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhithrogena</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Capniidae indet.	133.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Sweltsa</i> sp.	6.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Zapada cinctipes</i>	23.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Zapada</i> sp.	12.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Taenionema</i> sp.	9.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Plecoptera indet.	5.0	ok	Exclude	Damaged
WQS18	fb19-127-057	3	4-Oct-2019	<i>Glossosoma</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Lepidostoma</i> sp.	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Limnephilidae indet.	37.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhyacophila atrata</i> complex	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhyacophila betteni</i> group	3.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhyacophila sibirica</i> group	1.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	<i>Rhyacophila</i> sp.	5.0	ok	ok	-
WQS18	fb19-127-057	3	4-Oct-2019	Trichoptera indet.	5.0	ok	Exclude	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Ostracoda indet.	31.6	Exclude	Exclude	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Enchytraeidae indet.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Atractides</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Lebertia</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Stygothrombium</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Brillia</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Cricotopus/Orthocladius</i> sp. complex	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Eukiefferiella</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Hydrobaenus</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Chironomidae indet.	10.5	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Simuliidae indet.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Hesperoconopa</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Hexatoma</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Ameletus similior</i>	57.9	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Ameletus</i> sp.	10.5	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Ameletus validus</i>	84.2	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Baetis</i> sp.	315.8	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Drunella dodsii</i>	5.3	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS06-US	fb19-127-064	1	4-Oct-2019	Ephemerellidae indet.	168.4	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Cinygmula</i> sp.	10.5	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Epeorus</i> sp.	15.8	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Heptagenia</i> sp.	57.9	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Heptageniidae indet.	68.4	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Rhithrogena</i> sp.	142.1	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Ephemeroptera indet.	10.5	ok	Exclude	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Capniidae indet.	26.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Chloroperlidae indet.	31.6	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Leuctridae indet.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Zapada oregonensis</i> group	31.6	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Zapada</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Perlodidae indet.	21.1	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Taenionema</i> sp.	415.8	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Plecoptera indet.	10.5	ok	Exclude	-
WQS06-US	fb19-127-064	1	4-Oct-2019	<i>Rhyacophila</i> sp.	5.3	ok	ok	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Trichoptera indet.	10.5	ok	Exclude	-
WQS06-US	fb19-127-064	1	4-Oct-2019	Platyhelminthes indet.	15.8	Exclude	Exclude	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Nematoda indet.	7.1	Exclude	Exclude	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Lebertia</i> sp.	7.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Tanytarsus</i> sp.	7.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Brillia</i> sp.	21.4	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Eukiefferiella</i> sp.	7.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Chironomidae indet.	7.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Hexatoma</i> sp.	7.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Ameletus similior</i>	14.3	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Ameletus validus</i>	7.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Baetis rhodani</i> group	7.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Baetis</i> sp.	914.3	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Ephemerellidae indet.	207.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Epeorus grandis</i> group	21.4	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Epeorus</i> sp.	21.4	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Heptageniidae indet.	100.0	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Rhithrogena</i> sp.	235.7	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Capniidae indet.	21.4	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Haploperla</i> sp.	35.7	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Zapada cinctipes</i>	35.7	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Zapada oregonensis</i> group	7.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Zapada columbiana</i>	7.1	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Zapada</i> sp.	71.4	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Taenionema</i> sp.	471.4	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Plecoptera indet.	35.7	ok	Exclude	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Arctopsyche</i> sp.	21.4	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	Limnephilidae indet.	14.3	ok	ok	-
WQS06-US-FD	fb19-127-073	1	4-Oct-2019	<i>Rhyacophila</i> sp.	7.1	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	Enchytraeidae indet.	15.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	Tanytarsini indet.	5.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	Simuliidae indet.	25.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Dicranota</i> sp.	5.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Ameletus similior</i>	5.0	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Ameletus</i> sp.	20.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Ameletus validus</i>	10.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Baetis rhodani</i> group	10.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Baetis</i> sp.	615.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Drunella doddsii</i>	10.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	Ephemerellidae indet.	85.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Epeorus grandis</i> group	15.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	Heptageniidae indet.	25.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Rhithrogena</i> sp.	275.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Haploperla</i> sp.	50.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Zapada cinctipes</i>	25.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Zapada columbiana</i>	10.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Zapada</i> sp.	45.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	Perlodidae indet.	15.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Taenionema</i> sp.	560.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	Arctopsychinae indet.	5.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	<i>Parapsyche</i> sp.	5.0	ok	ok	-
WQS06-US	fb19-127-065	2	4-Oct-2019	Hydropsychidae indet.	5.0	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Pagastia</i> sp.	5.9	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Brillia</i> sp.	17.6	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Chironomidae indet.	23.5	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Simuliidae indet.	5.9	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Ameletus similior</i>	11.8	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Baetis rhodani</i> group	5.9	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Baetis</i> sp.	558.8	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Drunella doddsii</i>	11.8	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Ephemerellidae indet.	164.7	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Epeorus grandis</i> group	23.5	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Heptageniidae indet.	70.6	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Rhithrogena</i> sp.	164.7	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Capniidae indet.	35.3	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Haploperla</i> sp.	11.8	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Zapada cinctipes</i>	23.5	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Zapada oregonensis</i> group	5.9	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Zapada columbiana</i>	11.8	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Zapada</i> sp.	64.7	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Megarcys</i> sp.	5.9	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Perlodidae indet.	11.8	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Taenionema</i> sp.	664.7	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Plecoptera indet.	23.5	ok	Exclude	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Apatania</i> sp.	5.9	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Arctopsyche</i> sp.	11.8	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	<i>Rhyacophila</i> sp.	5.9	ok	ok	-
WQS06-US-FD	fb19-127-074	2	4-Oct-2019	Trichoptera indet.	5.9	ok	Exclude	-
WQS06-US	fb19-127-066	3	4-Oct-2019	Ostracoda indet.	11.1	Exclude	Exclude	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Hygrobates</i> sp.	5.6	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Lebertia</i> sp.	5.6	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Tanytarsus</i> sp.	16.7	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Eukiefferiella</i> sp.	5.6	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Tvetenia</i> sp.	11.1	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS06-US	fb19-127-066	3	4-Oct-2019	Clinocerinae indet.	5.6	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	Simuliidae indet.	22.2	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Ameletus</i> sp.	11.1	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Baetis rhodani</i> group	5.6	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Baetis</i> sp.	588.9	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Drunella doddsii</i>	16.7	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	Ephemerellidae indet.	116.7	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Epeorus grandis</i> group	11.1	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	Heptageniidae indet.	138.9	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Rhithrogena</i> sp.	166.7	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	Capniidae indet.	16.7	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Haploperla</i> sp.	11.1	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	Chloroperlidae indet.	27.8	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Zapada oregonensis</i> group	5.6	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Zapada columbiana</i>	5.6	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Zapada</i> sp.	38.9	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	Perlodidae indet.	11.1	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Taenionema</i> sp.	505.6	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	Plecoptera indet.	11.1	ok	Exclude	-
WQS06-US	fb19-127-066	3	4-Oct-2019	<i>Parapsyche</i> sp.	11.1	ok	ok	-
WQS06-US	fb19-127-066	3	4-Oct-2019	Limnephilidae indet.	5.6	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Ostracoda indet.	15.0	Exclude	Exclude	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Hygrobates</i> sp.	5.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Sperchon</i> sp.	5.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Eukiefferiella</i> sp.	5.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Rheocricotopus</i> sp.	5.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Neoplasta</i> sp.	5.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Simuliidae indet.	5.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Hexatoma</i> sp.	1.0	ok	ok	Macro > 1.5 cm
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Ameletus similior</i>	30.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Ameletus</i> sp.	35.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Ameletus validus</i>	20.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Baetis rhodani</i> group	15.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Baetis</i> sp.	405.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Drunella doddsii</i>	15.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Ephemerellidae indet.	325.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Epeorus</i> sp.	10.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Heptageniidae indet.	190.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Rhithrogena</i> sp.	165.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Capniidae indet.	40.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Haploperla</i> sp.	35.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Chloroperlidae indet.	5.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Zapada cinctipes</i>	10.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Zapada oregonensis</i> group	5.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Zapada</i> sp.	15.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Megarcys</i> sp.	1.0	ok	ok	Macro > 1.5 cm
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Perlodidae indet.	25.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	<i>Taenionema</i> sp.	285.0	ok	ok	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Plecoptera indet.	20.0	ok	Exclude	-
WQS06-US-FD	fb19-127-075	3	4-Oct-2019	Trichoptera indet.	25.0	ok	Exclude	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS07	fb19-127-061	1	6-Oct-2019	<i>Hygrobates</i> sp.	13.3	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Brillia</i> sp.	40.0	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	Simuliidae indet.	20.0	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Hesperoconopa</i> sp.	6.7	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Baetis rhodani</i> group	13.3	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Baetis</i> sp.	613.3	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	Ephemerellidae indet.	260.0	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Epeorus</i> sp.	26.7	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Heptagenia</i> sp.	33.3	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	Heptageniidae indet.	220.0	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Rhithrogena</i> sp.	73.3	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	Capniidae indet.	86.7	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Haploperla</i> sp.	46.7	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	Chloroperlidae indet.	20.0	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Visoka cataractae</i>	6.7	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Zapada cinctipes</i>	86.7	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Zapada oregonensis</i> group	26.7	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Zapada columbiana</i>	40.0	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Zapada</i> sp.	33.3	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	Perlodidae indet.	33.3	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Taenionema</i> sp.	326.7	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	Plecoptera indet.	6.7	ok	Exclude	-
WQS07	fb19-127-061	1	6-Oct-2019	<i>Parapsyche</i> sp.	13.3	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	Hydropsychidae indet.	13.3	ok	ok	-
WQS07	fb19-127-061	1	6-Oct-2019	Trichoptera indet.	6.7	ok	Exclude	-
WQS07	fb19-127-061	1	6-Oct-2019	Platyhelminthes indet.	6.7	Exclude	Exclude	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Sperchon</i> sp.	5.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Tanytarsus</i> sp.	2.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Brillia</i> sp.	7.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Eukiefferiella</i> sp.	2.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Rheocricotopus</i> sp.	5.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Chironomidae indet.	2.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Simulium</i> sp.	5.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Simuliidae indet.	30.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Ameletus</i> sp.	2.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Baetidae indet.	2.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Baetis</i> sp.	325.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Ephemerellidae indet.	105.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Epeorus</i> sp.	12.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Heptageniidae indet.	17.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Rhithrogena</i> sp.	72.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Capniidae indet.	47.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Haploperla</i> sp.	5.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Chloroperlidae indet.	10.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Zapada cinctipes</i>	12.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Zapada oregonensis</i> group	12.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Zapada columbiana</i>	2.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Zapada</i> sp.	30.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Perlodidae indet.	20.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Taenionema</i> sp.	72.5	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS07	fb19-127-062	2	6-Oct-2019	<i>Arctopsycha</i> sp.	7.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Hydropsychidae indet.	2.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Limnephilidae indet.	7.5	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	<i>Rhyacophila</i> sp.	10.0	ok	ok	-
WQS07	fb19-127-062	2	6-Oct-2019	Platyhelminthes indet.	5.0	Exclude	Exclude	-
WQS07	fb19-127-063	3	6-Oct-2019	Ostracoda indet.	8.0	Exclude	Exclude	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Hygrobates</i> sp.	8.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Sperchon</i> sp.	4.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	Acari indet.	4.0	ok	Exclude	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Tanytarsus</i> sp.	4.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Eukiefferiella</i> sp.	8.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Wiedemannia</i> sp.	4.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Hesperoconopa</i> sp.	4.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Ameletus similior</i>	8.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Ameletus</i> sp.	16.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Baetis rhodani</i> group	16.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Baetis</i> sp.	280.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Drunella doddsii</i>	8.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	Ephemerellidae indet.	288.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Cinygmula</i> sp.	12.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Epeorus</i> sp.	60.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Heptagenia</i> sp.	32.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	Heptageniidae indet.	32.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Rhithrogena</i> sp.	100.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	Ephemeroptera indet.	8.0	ok	Exclude	Damaged
WQS07	fb19-127-063	3	6-Oct-2019	Capniidae indet.	84.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Haploperla</i> sp.	4.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	Chloroperlidae indet.	8.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Zapada cinctipes</i>	8.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Zapada oregonensis</i> group	8.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Zapada</i> sp.	16.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	Perlodidae indet.	44.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Taenionema</i> sp.	216.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	Plecoptera indet.	8.0	ok	Exclude	-
WQS07	fb19-127-063	3	6-Oct-2019	Limnephilidae indet.	4.0	ok	ok	-
WQS07	fb19-127-063	3	6-Oct-2019	<i>Rhyacophila betteni</i> group	4.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Egg/egg mass	40.0	Exclude	Exclude	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Nais communis</i>	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Hygrobates</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Lebertia</i> sp.	30.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Sperchon</i> sp.	13.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Acari indet.	10.0	ok	Exclude	-
WQS05	fb19-127-013	1	25-Aug-2019	Ceratopogoninae indet.	6.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Stempellinella</i> sp.	6.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Tanytarsus</i> sp.	6.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Brillia</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Corynoneura</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	226.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	6.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Orthocladiinae indet.	13.3	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS05	fb19-127-013	1	25-Aug-2019	<i>Parorthocladius</i> sp.	6.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Rheocricotopus</i> sp.	20.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Thienemanniella</i> sp.	6.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Tvetenia</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Chironomidae indet.	73.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Clinocera</i> sp.	6.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Wiedemannia</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Neoplasta</i> sp.	16.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Pericomaini indet.	3.3	ok	ok	Previously identified as <i>Pericoma</i> / <i>Telmatoscopus</i> sp. in 2017
WQS05	fb19-127-013	1	25-Aug-2019	<i>Rhabdomastix</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Hexatoma</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Ameletus</i> sp.	60.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Acentrella</i> sp.	10.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Baetidae indet.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Baetis rhodani</i> group	80.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Baetis</i> sp.	300.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Drunella coloradensis</i>	2.0	ok	ok	Macro > 1.5 cm
WQS05	fb19-127-013	1	25-Aug-2019	Ephemerellidae indet.	23.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Serratella</i> sp.	10.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Cinygmula</i> sp.	6.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Heptageniidae indet.	100.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Neoleptophlebia</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Ephemeroptera indet.	3.3	ok	Exclude	Damaged
WQS05	fb19-127-013	1	25-Aug-2019	Capniidae indet.	20.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Sweltsa</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Chloroperlidae indet.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Zapada cinctipes</i>	6.7	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Zapada</i> sp.	10.0	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Hesperoperla</i> sp.	33.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	<i>Taenionema</i> sp.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Plecoptera indet.	3.3	ok	Exclude	-
WQS05	fb19-127-013	1	25-Aug-2019	Hydropsychidae indet.	3.3	ok	ok	-
WQS05	fb19-127-013	1	25-Aug-2019	Trichoptera indet.	3.3	ok	Exclude	-
WQS05	fb19-127-013	1	25-Aug-2019	Ostracoda indet.	3.3	Exclude	Exclude	-
WQS05	fb19-127-013	1	25-Aug-2019	Platyhelminthes indet.	10.0	Exclude	Exclude	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Lebertia</i> sp.	29.4	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Sperchon</i> sp.	11.8	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Sperchonopsis</i> sp.	17.6	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Ceratopogoninae indet.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Stempellinella</i> sp.	17.6	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Tanytarsus</i> sp.	11.8	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Brillia</i> sp.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Cricotopus</i> / <i>Orthocladius</i> sp. complex	535.3	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	47.1	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Orthocladiinae indet.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Parorthocladius</i> sp.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Rheocricotopus</i> sp.	117.6	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Thienemanniella</i> sp.	11.8	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Tvetenia</i> sp.	41.2	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Chironomidae indet.	35.3	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS05	fb19-127-014	2	25-Aug-2019	<i>Roederiodes</i> sp.	11.8	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Neoplasta</i> sp.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Simuliidae indet.	11.8	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Hexatoma</i> sp.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Ameletus</i> sp.	52.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Baetidae indet.	129.4	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Baetis</i> sp.	317.6	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Drunella doddsii</i>	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Ephemerellidae indet.	58.8	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Serratella</i> sp.	23.5	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Cinygmula</i> sp.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Epeorus deceptivus</i>	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Heptageniidae indet.	23.5	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Rhithrogena</i> sp.	35.3	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Neoleptophlebia</i> sp.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Capniidae indet.	47.1	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Haploperla</i> sp.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Suwallia</i> sp.	35.3	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Paraperla</i> sp.	17.6	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Zapada cinctipes</i>	70.6	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Perlodidae indet.	11.8	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Taenionema</i> sp.	11.8	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Amiocentrus</i> sp.	29.4	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Hydropsychidae indet.	5.9	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	<i>Ecclisomyia</i> sp.	11.8	ok	ok	-
WQS05	fb19-127-014	2	25-Aug-2019	Trichoptera indet.	17.6	ok	Exclude	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Atractides</i> sp.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Lebertia</i> sp.	19.2	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Sperchonopsis</i> sp.	19.2	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Stempellinella</i> sp.	7.7	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Tanytarsini indet.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Tanytarsus</i> sp.	42.3	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	61.5	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	50.0	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Orthocladiinae indet.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Tvetenia</i> sp.	11.5	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Chironomidae indet.	65.4	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Empididae indet.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Simuliidae indet.	38.5	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Ameletus</i> sp.	19.2	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Acentrella</i> sp.	11.5	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Baetis rhodani</i> group	65.4	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Baetis</i> sp.	473.1	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Drunella coloradensis</i>	11.5	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Ephemerellidae indet.	26.9	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Serratella</i> sp.	11.5	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Epeorus deceptivus</i>	7.7	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Heptageniidae indet.	26.9	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Rhithrogena</i> sp.	50.0	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Neoleptophlebia</i> sp.	15.4	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS05	fb19-127-015	3	25-Aug-2019	Capniidae indet.	30.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Haploperla</i> sp.	15.4	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Suwallia</i> sp.	15.4	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Paraperla</i> sp.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Zapada cinctipes</i>	19.2	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Zapada columbiana</i>	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Zapada</i> sp.	26.9	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Megarcys</i> sp.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Rickera</i> sp.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Perlodidae indet.	7.7	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Taenionema</i> sp.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Plecoptera indet.	7.7	ok	Exclude	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Amiocentrus</i> sp.	23.1	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Arctopsyche</i> sp.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Parapsyche</i> sp.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Hydropsychidae indet.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Hydroptilidae indet.	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	<i>Rhyacophila brunnea/vemna</i> group	3.8	ok	ok	-
WQS05	fb19-127-015	3	25-Aug-2019	Trichoptera indet.	7.7	ok	Exclude	-
WQS05	fb19-127-015	3	25-Aug-2019	Platyhelminthes indet.	26.9	Exclude	Exclude	-
WQS16	fb19-127-070	1	6-Oct-2019	Egg/egg mass	6.5	Exclude	Exclude	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Eiseniella tetraedra</i>	12.9	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Lumbricidae indet.	6.5	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Oligochaeta indet.	6.5	ok	Exclude	-
WQS16	fb19-127-070	1	6-Oct-2019	Entomobryidae indet.	6.5	Exclude	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Isotomidae indet.	3.2	Exclude	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Heterlimnius</i> sp.	6.5	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Ceratopogoninae indet.	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Tanytarsini indet.	16.1	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Tanytarsus</i> sp.	74.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Brillia</i> sp.	25.8	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Orthocladiinae indet.	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Parametriocnemus</i> sp.	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Psectrocladius</i> sp.	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Rheocricotopus</i> sp.	90.3	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Chironomidae indet.	54.8	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Oreogeton</i> sp.	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Dicranota</i> sp.	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Tipula</i> sp.	1.0	ok	ok	Macro > 1.5 cm
WQS16	fb19-127-070	1	6-Oct-2019	<i>Ameletus similior</i>	67.7	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Ameletus</i> sp.	16.1	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Baetis</i> sp.	12.9	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Drunella doddsii</i>	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Ephemerellidae indet.	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Cinygmula</i> sp.	58.1	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Epeorus</i> sp.	16.1	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Heptagenia</i> sp.	12.9	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Heptageniidae indet.	193.5	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Rhithrogena</i> sp.	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Capniidae indet.	200.0	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS16	fb19-127-070	1	6-Oct-2019	<i>Sweltsa</i> sp.	80.6	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Isoperla</i> sp.	9.7	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Megarcys</i> sp.	6.5	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	<i>Lepidostoma</i> sp.	3.2	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Limnephilidae indet.	22.6	ok	ok	-
WQS16	fb19-127-070	1	6-Oct-2019	Trichoptera indet.	6.5	ok	Exclude	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Eiseniella tetraedra</i>	13.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Oligochaeta indet.	3.3	ok	Exclude	-
WQS16	fb19-127-071	2	6-Oct-2019	Oribatida indet.	3.3	ok	Exclude	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Heterlimnius</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Hydrophilidae indet.	3.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Ceratopogoninae indet.	20.0	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Neostempellina</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Tanytarsus</i> sp.	93.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Brillia</i> sp.	30.0	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Orthoclaadiinae indet.	6.7	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Parametriocnemus</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Parorthocladius</i> sp.	3.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Oreogeton</i> sp.	10.0	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Dicranota</i> sp.	3.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Tipulidae indet.	3.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Ameletus similior</i>	40.0	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Ameletus</i> sp.	23.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Baetis</i> sp.	16.7	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Drunella doddsii</i>	6.7	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Ephemerellidae indet.	10.0	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Cinygmula</i> sp.	63.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Epeorus</i> sp.	13.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Heptageniidae indet.	246.7	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Rhithrogena</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Capniidae indet.	183.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Sweltsa</i> sp.	140.0	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Zapada columbiana</i>	3.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Megarcys</i> sp.	53.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Plecoptera indet.	23.3	ok	Exclude	Damaged
WQS16	fb19-127-071	2	6-Oct-2019	<i>Apatania</i> sp.	3.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Glossosoma</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Limnephilidae indet.	3.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Rhyacophila betteni</i> group	3.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	<i>Rhyacophila</i> sp.	13.3	ok	ok	-
WQS16	fb19-127-071	2	6-Oct-2019	Trichoptera indet.	3.3	ok	Exclude	-
WQS16	fb19-127-071	2	6-Oct-2019	Platyhelminthes indet.	3.3	Exclude	Exclude	-
WQS16	fb19-127-072	3	6-Oct-2019	Egg/egg mass	13.3	Exclude	Exclude	-
WQS16	fb19-127-072	3	6-Oct-2019	Insecta indet. (terrestrial)	6.7	Exclude	Exclude	Terrestrial
WQS16	fb19-127-072	3	6-Oct-2019	<i>Eiseniella tetraedra</i>	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Hygrobates</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Lebertia</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Sperchon</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Torrenticola</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Elmidae indet.	6.7	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS16	fb19-127-072	3	6-Oct-2019	Tanytarsini indet.	160.0	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Tanytarsus</i> sp.	146.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Brillia</i> sp.	213.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Eukiefferiella</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Rheocricotopus</i> sp.	13.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Pentaneurini indet.	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Chironomidae indet.	40.0	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Simuliidae indet.	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Dicranota</i> sp.	13.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Tipula</i> sp.	1.0	ok	ok	Macro > 1.5 cm
WQS16	fb19-127-072	3	6-Oct-2019	<i>Ameletus similior</i>	73.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Ameletus</i> sp.	60.0	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Drunella doddsii</i>	33.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Ephemerellidae indet.	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Cinygmula</i> sp.	213.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Epeorus</i> sp.	26.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Heptageniidae indet.	340.0	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Capniidae indet.	320.0	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Sweltsa</i> sp.	173.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Chloroperlidae indet.	13.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Zapada cinctipes</i>	13.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Zapada columbiana</i>	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Megarcys</i> sp.	66.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Perlodidae indet.	20.0	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Plecoptera indet.	60.0	ok	Exclude	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Glossosoma</i> sp.	6.7	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Limnephilidae indet.	133.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	<i>Rhyacophila betteni</i> group	13.3	ok	ok	-
WQS16	fb19-127-072	3	6-Oct-2019	Trichoptera indet.	60.0	ok	Exclude	-
WQS16	fb19-127-072	3	6-Oct-2019	Platyhelminthes indet.	6.7	Exclude	Exclude	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Eiseniella tetraedra</i>	26.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Enchytraeidae indet.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Henlea</i> sp.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Oligochaeta indet.	3.3	ok	Exclude	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Hygrobates</i> sp.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Lebertia</i> sp.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Heterlimnius</i> sp.	33.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Elmidae indet.	26.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Ceratopogoninae indet.	40.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Polypedilum</i> sp.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Tanytarsini indet.	80.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Tanytarsus</i> sp.	30.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Brillia</i> sp.	10.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Corynoneura</i> sp.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Orthoclaadiinae indet.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Parorthocladius</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Rheocricotopus</i> sp.	40.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Pentaneurini indet.	6.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Chironomidae indet.	6.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Oreogeton</i> sp.	3.3	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS17	fb19-127-067	1	6-Oct-2019	Simuliidae indet.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Tipula</i> sp.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Ameletus similior</i>	33.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Ameletus</i> sp.	16.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Baetis</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Ephemere llidae indet.	6.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Cinygmula</i> sp.	70.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Epeorus</i> sp.	50.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Heptagenia</i> sp.	36.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Heptageniidae indet.	200.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Capniidae indet.	136.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Haploperla</i> sp.	26.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Sweltsa</i> sp.	100.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Chloroperlidae indet.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Megarcys</i> sp.	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Plecoptera indet.	20.0	ok	Exclude	Damaged
WQS17	fb19-127-067	1	6-Oct-2019	<i>Ecclisomyia</i> sp.	20.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Limnephilidae indet.	16.7	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Rhyacophila betteni</i> group	20.0	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	<i>Rhyacophila brunnea/vemna</i> group	3.3	ok	ok	-
WQS17	fb19-127-067	1	6-Oct-2019	Trichoptera indet.	13.3	ok	Exclude	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Eiseniella tetraedra</i>	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Rhyacodrilus</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Enchytraeidae indet.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Hygrobates</i> sp.	13.3	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Sperchon</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Torrenticola</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Heterlimnius</i> sp.	20.0	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Elmidae indet.	26.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Ceratopogoninae indet.	80.0	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Polypedilum</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Neostempellina</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Tanytarsini indet.	906.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Tanytarsus</i> sp.	226.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Pagastia</i> sp.	13.3	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Brillia</i> sp.	26.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Parametriocnemus</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Rheocricotopus</i> sp.	53.3	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Tvetenia</i> sp.	13.3	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Chironomidae indet.	66.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Simuliidae indet.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Dicranota</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Ameletus similior</i>	26.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Ameletus</i> sp.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Acentrella</i> sp.	13.3	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Baetidae indet.	40.0	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Ephemere llidae indet.	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Cinygmula</i> sp.	60.0	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Epeorus</i> sp.	60.0	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Heptageniidae indet.	126.7	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS17	fb19-127-068	2	6-Oct-2019	Capniidae indet.	53.3	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Haploperla</i> sp.	13.3	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Sweltsa</i> sp.	93.3	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Zapada oregonensis</i> group	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Zapada columbiana</i>	6.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Megarcys</i> sp.	26.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Plecoptera indet.	13.3	ok	Exclude	-
WQS17	fb19-127-068	2	6-Oct-2019	Leptoceridae indet.	60.0	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Limnephilidae indet.	26.7	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	<i>Rhyacophila</i> sp.	40.0	ok	ok	-
WQS17	fb19-127-068	2	6-Oct-2019	Trichoptera indet.	6.7	ok	Exclude	-
WQS17	fb19-127-068	2	6-Oct-2019	Platyhelminthes indet.	6.7	Exclude	Exclude	-
WQS17	fb19-127-069	3	6-Oct-2019	Ostracoda indet.	7.4	Exclude	Exclude	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Eiseniella tetraedra</i>	18.5	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Enchytraeidae indet.	7.4	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Oligochaeta indet.	3.7	ok	Exclude	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Hygrobates</i> sp.	7.4	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Heterlimnius</i> sp.	18.5	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Ceratopogoninae indet.	25.9	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Tanytarsini indet.	437.0	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Tanytarsus</i> sp.	85.2	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Brillia</i> sp.	107.4	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Eukiefferiella</i> sp.	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Metriocnemus</i> sp.	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Psectrocladius</i> sp.	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Pentaneurini indet.	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Chironomidae indet.	29.6	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Simuliidae indet.	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Tipulidae indet.	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Ameletus similior</i>	7.4	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Baetis</i> sp.	11.1	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Ephemerellidae indet.	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Cinygmula</i> sp.	11.1	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Epeorus</i> sp.	33.3	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Heptageniidae indet.	92.6	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Capniidae indet.	114.8	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Sweltsa</i> sp.	40.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Paraperla</i> sp.	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Chloroperlidae indet.	14.8	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Megarcys</i> sp.	11.1	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Plecoptera indet.	7.4	ok	Exclude	Damaged
WQS17	fb19-127-069	3	6-Oct-2019	<i>Glossosoma</i> sp.	7.4	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Psychoglypha</i> sp.	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Rhyacophila betteni</i> group	3.7	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Rhyacophila brunnea/vemna</i> group	14.8	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	<i>Rhyacophila</i> sp.	14.8	ok	ok	-
WQS17	fb19-127-069	3	6-Oct-2019	Trichoptera indet.	22.2	ok	Exclude	-
WQS17	fb19-127-069	3	6-Oct-2019	Gastropoda indet.	3.7	ok	Exclude	-
WQS08	fb19-127-010	1	25-Aug-2019	Egg/egg mass	13.0	Exclude	Exclude	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Stylodrilus heringianus</i>	30.4	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS08	fb19-127-010	1	25-Aug-2019	<i>Nais behningi</i>	10.9	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Nais bretscheri</i>	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Nais communis</i>	13.0	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Enchytraeidae indet.	4.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Aturus</i> sp.	6.5	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Feltria</i> sp.	6.5	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Hygrobates</i> sp.	19.6	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Sperchon</i> sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Sperchonopsis</i> sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Stygothrombium</i> sp.	4.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Ceratopogoninae indet.	6.5	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Paracladopelma</i> sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Corynocera</i> sp.	4.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Neostempellina</i> sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Stempellinella</i> sp.	4.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Tanytarsini indet.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Tanytarsus</i> sp.	39.1	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Brillia</i> sp.	8.7	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Corynoneura</i> sp.	4.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	187.0	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Heterotrissocladius marcidus</i>	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Hydrobaenus</i> sp.	32.6	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Orthoclaadiinae indet.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Rheocricotopus</i> sp.	28.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Tvetenia</i> sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Thienemannimyia</i> group sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Chironomidae indet.	45.7	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Pericomaini indet.	2.2	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS08	fb19-127-010	1	25-Aug-2019	<i>Rhabdomastix</i> sp.	4.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Tipulidae indet.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Diptera indet.	6.5	ok	Exclude	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Ameletus</i> sp.	23.9	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Ameletus validus</i>	71.7	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Baetidae indet.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Baetis</i> sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Ephemerellidae indet.	28.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Rhithrogena</i> sp.	6.5	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Neoleptophlebia</i> sp.	4.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Capniidae indet.	13.0	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Haploperla</i> sp.	4.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Zapada oregonensis</i> group	4.3	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Zapada</i> sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Perlodidae indet.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	<i>Ecclisomyia</i> sp.	2.2	ok	ok	-
WQS08	fb19-127-010	1	25-Aug-2019	Nematoda indet.	4.3	Exclude	Exclude	-
WQS08	fb19-127-010	1	25-Aug-2019	Ostracoda indet.	4.3	Exclude	Exclude	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Stylodrilus heringianus</i>	43.5	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Chaetogaster diastrophus</i>	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Nais behningi</i>	14.5	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS08	fb19-127-011	2	25-Aug-2019	<i>Nais bretscheri</i>	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Nais communis</i>	4.8	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Enchytraeidae indet.	6.5	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Aturus</i> sp.	6.4	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Hygrobates</i> sp.	9.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Lebertia</i> sp.	3.2	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Sperchon</i> sp.	3.2	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Acari indet.	1.6	ok	Exclude	-
WQS08	fb19-127-011	2	25-Aug-2019	Hypogastruridae indet.	3.2	Exclude	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Hydroporinae indet.	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Ceratopogoninae indet.	6.5	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Tanytarsus</i> sp.	17.7	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Corynoneura</i> sp.	8.1	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	169.4	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	6.5	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Heterotrissocladius marcidus</i>	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Hydrobaenus</i> sp.	24.2	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Orthoclaadiinae indet.	8.1	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Rheocricotopus</i> sp.	9.7	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Toetenia</i> sp.	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Pentaneurini indet.	3.2	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Chironomidae indet.	56.5	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Neoplasta</i> sp.	3.2	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Empididae indet.	4.8	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Pericomaini indet.	1.6	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS08	fb19-127-011	2	25-Aug-2019	<i>Rhabdomastix</i> sp.	3.2	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Tipulidae indet.	4.8	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Diptera indet.	1.6	ok	Exclude	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Ameletus</i> sp.	17.7	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Ameletus validus</i>	6.5	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Baetis</i> sp.	6.5	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Ephemerellidae indet.	14.5	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Serratella</i> sp.	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Cinygmula</i> sp.	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Ephemeroptera indet.	1.6	ok	Exclude	-
WQS08	fb19-127-011	2	25-Aug-2019	Capniidae indet.	3.2	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Paraperla</i> sp.	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	<i>Rickera</i> sp.	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Perlodidae indet.	4.8	ok	Exclude	Damaged
WQS08	fb19-127-011	2	25-Aug-2019	<i>Ecclisomyia</i> sp.	1.6	ok	ok	-
WQS08	fb19-127-011	2	25-Aug-2019	Trichoptera indet.	1.6	ok	Exclude	-
WQS08	fb19-127-011	2	25-Aug-2019	Nematoda indet.	1.6	Exclude	Exclude	-
WQS08	fb19-127-011	2	25-Aug-2019	Oligochaeta indet. cocoon	1.6	Exclude	Exclude	-
WQS08	fb19-127-011	2	25-Aug-2019	Ostracoda indet.	1.6	Exclude	Exclude	-
WQS08	fb19-127-011	2	25-Aug-2019	Platyhelminthes indet.	1.6	Exclude	Exclude	-
WQS08	fb19-127-012	3	25-Aug-2019	Acari indet. (terrestrial)	1.9	Exclude	Exclude	Terrestrial
WQS08	fb19-127-012	3	25-Aug-2019	Egg/egg mass	11.5	Exclude	Exclude	-
WQS08	fb19-127-012	3	25-Aug-2019	Lumbriculidae indet.	3.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Stylodrilus heringianus</i>	46.2	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Nais behningi</i>	7.7	ok	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS08	fb19-127-012	3	25-Aug-2019	<i>Nais communis</i>	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Nais</i> sp.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Enchytraeidae indet.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Oligochaeta indet.	3.8	ok	Exclude	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Aturus</i> sp.	5.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Hygrobates</i> sp.	5.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Lebertia</i> sp.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Coleoptera indet.	1.9	ok	Exclude	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Microtendipes pedellus</i> group	5.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Micropsectra</i> sp.	3.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Corynoneura</i> sp.	5.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	207.7	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Diplocladius</i> sp.	11.5	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	7.7	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Hydrobaenus</i> sp.	48.1	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Orthoclaadiinae indet.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Rheocricotopus</i> sp.	13.5	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Tvetenia</i> sp.	7.7	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Chironomidae indet.	19.2	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Empididae indet.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Tanyderidae indet.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Limoniinae indet.	5.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Tipula</i> sp.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Hoplolabis</i> sp.	3.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Ameletus similior</i>	3.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Ameletus</i> sp.	13.5	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Ameletus validus</i>	51.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Baetis rhodani</i> group	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Drunella spinifera</i>	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Ephemerellidae indet.	9.6	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Epeorus grandis</i> group	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Capniidae indet.	36.5	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Chloroperlidae indet.	3.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Zapada</i> sp.	3.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Isoperla</i> sp.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Rickera</i> sp.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	<i>Taenionema</i> sp.	3.8	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Trichoptera indet.	1.9	ok	Exclude	-
WQS08	fb19-127-012	3	25-Aug-2019	Insecta indet. (terrestrial)	1.9	Exclude	Exclude	Terrestrial
WQS08	fb19-127-012	3	25-Aug-2019	Pisidiidae indet.	1.9	ok	ok	-
WQS08	fb19-127-012	3	25-Aug-2019	Nematoda indet.	3.8	Exclude	Exclude	-
WQS08	fb19-127-012	3	25-Aug-2019	Platyhelminthes indet.	7.7	Exclude	Exclude	-
WQS09	fb19-127-007	1	25-Aug-2019	Acari indet. (terrestrial)	2.0	Exclude	Exclude	Terrestrial
WQS09	fb19-127-007	1	25-Aug-2019	<i>Stylodrilus heringianus</i>	38.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Oligochaeta indet.	4.0	ok	Exclude	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Hygrobates</i> sp.	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Hygrobatidae indet.	4.0	ok	Exclude	Immature
WQS09	fb19-127-007	1	25-Aug-2019	<i>Lebertia</i> sp.	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Sperchon</i> sp.	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Entomobryidae indet.	4.0	Exclude	ok	-

Appendix 10-D. Stream Benthic Invertebrates, Tenas Project, 2000 to 2019

Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS09	fb19-127-007	1	25-Aug-2019	Hydraenidae indet.	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Ceratopogoninae indet.	20.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Microtendipes pedellus</i> group	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Tanytarsus</i> sp.	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Brillia</i> sp.	24.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Corynoneura</i> sp.	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	66.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Eukiefferiella</i> sp.	20.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Rheocricotopus</i> sp.	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Tvetenia</i> sp.	10.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Chironomidae indet.	66.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Pericomaini indet.	2.0	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS09	fb19-127-007	1	25-Aug-2019	<i>Rhabdomastix</i> sp.	4.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Diptera indet.	4.0	ok	Exclude	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Ameletus</i> sp.	36.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Baetis</i> sp.	30.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Ephemerellidae indet.	36.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Serratella</i> sp.	4.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Cinygmula</i> sp.	8.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Epeorus deceptivus</i>	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Heptageniidae indet.	26.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Rhithrogena</i> sp.	14.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Ephemeroptera indet.	10.0	ok	Exclude	Damaged, anterior only
WQS09	fb19-127-007	1	25-Aug-2019	Capniidae indet.	26.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Haploperla</i> sp.	42.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Sweltsa</i> sp.	4.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Chloroperlidae indet.	32.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Zapada cinctipes</i>	6.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Zapada oregonensis</i> group	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	<i>Isoperla</i> sp.	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Perlodidae indet.	22.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Plecoptera indet.	14.0	ok	Exclude	-
WQS09	fb19-127-007	1	25-Aug-2019	Hydropsychidae indet.	2.0	ok	ok	-
WQS09	fb19-127-007	1	25-Aug-2019	Egg/egg mass	10.0	Exclude	Exclude	-
WQS09	fb19-127-007	1	25-Aug-2019	Insecta indet. (terrestrial)	8.0	Exclude	Exclude	Terrestrial
WQS09	fb19-127-007	1	25-Aug-2019	Nematoda indet.	2.0	Exclude	Exclude	-
WQS09	fb19-127-007	1	25-Aug-2019	Platyhelminthes indet.	36.0	Exclude	Exclude	-
WQS09	fb19-127-008	2	25-Aug-2019	Acari indet. (terrestrial)	5.0	Exclude	Exclude	Terrestrial
WQS09	fb19-127-008	2	25-Aug-2019	<i>Stylodrilus heringianus</i>	92.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Nais communis</i>	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Atractides</i> sp.	5.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Hygrobates</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Sperchon</i> sp.	5.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Isotomidae indet.	7.5	Exclude	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Staphylinidae indet.	5.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Polypedilum</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Tanytarsini indet.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Tanytarsus</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Boreoheptagyia</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Corynoneura</i> sp.	5.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS09	fb19-127-008	2	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	105.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Eukiefferiella</i> sp.	87.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Heleniella</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Thienemanniella</i> sp.	5.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Tvetenia</i> sp.	12.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Chironomidae indet.	30.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Empididae indet.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Tipulidae indet.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Diptera indet.	2.5	ok	Exclude	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Ameletus</i> sp.	45.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Acentrella</i> sp.	10.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Baetis</i> sp.	45.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Ephemerellidae indet.	27.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Serratella</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Cinygmula</i> sp.	22.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Heptageniidae indet.	57.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Rhithrogena</i> sp.	45.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Neoleptophlebia</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Capniidae indet.	20.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Haploperla</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Suwallia</i> sp.	47.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Sweltsa</i> sp.	5.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Chloroperlidae indet.	17.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Zapada cinctipes</i>	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Zapada oregonensis</i> group	5.0	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Zapada</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Isoperla</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Rickera</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Perlodidae indet.	27.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Plecoptera indet.	5.0	ok	Exclude	-
WQS09	fb19-127-008	2	25-Aug-2019	<i>Lepidostoma</i> sp.	2.5	ok	ok	-
WQS09	fb19-127-008	2	25-Aug-2019	Insecta indet. (terrestrial)	7.5	Exclude	Exclude	Terrestrial
WQS09	fb19-127-008	2	25-Aug-2019	Nematoda indet.	7.5	Exclude	Exclude	-
WQS09	fb19-127-008	2	25-Aug-2019	Platyhelminthes indet.	7.5	Exclude	Exclude	-
WQS09	fb19-127-009	3	25-Aug-2019	Lumbriculidae indet.	34.5	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Stylodrilus heringianus</i>	79.3	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	Oligochaeta indet.	6.9	ok	Exclude	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Lebertia</i> sp.	6.9	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Stygothrombium</i> sp.	3.4	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	Ceratopogoninae indet.	17.2	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Polypedilum</i> sp.	3.4	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Tanytarsus</i> sp.	3.4	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Boreoheptagyia</i> sp.	3.4	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Corynoneura</i> sp.	3.4	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	200.0	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Eukiefferiella</i> sp.	24.1	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Heleniella</i> sp.	10.3	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Tvetenia</i> sp.	27.6	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	Chironomidae indet.	41.4	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Neoplasta</i> sp.	3.4	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS09	fb19-127-009	3	25-Aug-2019	<i>Dicranota</i> sp.	6.9	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Ameletus</i> sp.	13.8	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Acentrella</i> sp.	6.9	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Baetis rhodani</i> group	37.9	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Baetis</i> sp.	48.3	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Drunella spinifera</i>	6.9	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	Ephemerellidae indet.	82.8	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Serratella</i> sp.	20.7	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Cinygmula</i> sp.	6.9	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	Heptageniidae indet.	58.6	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Rhithrogena</i> sp.	124.1	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Neoleptophlebia</i> sp.	3.4	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	Ephemeroptera indet.	6.9	ok	Exclude	-
WQS09	fb19-127-009	3	25-Aug-2019	Capniidae indet.	110.3	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Suwallia</i> sp.	31.0	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Paraperla</i> sp.	13.8	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	Chloroperlidae indet.	24.1	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Zapada oregonensis</i> group	17.2	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Zapada</i> sp.	24.1	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Isoperla</i> sp.	3.4	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Rickera</i> sp.	1.0	ok	ok	Macro > 1.5 cm
WQS09	fb19-127-009	3	25-Aug-2019	Perlodidae indet.	6.9	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	<i>Taenionema</i> sp.	6.9	ok	ok	-
WQS09	fb19-127-009	3	25-Aug-2019	Plecoptera indet.	10.3	ok	Exclude	-
WQS09	fb19-127-009	3	25-Aug-2019	Hydropsychidae indet.	17.2	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Stylodrilus heringianus</i>	300.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Chaetogaster diaphanus</i>	160.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Nais behningi</i>	160.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Nais bretscheri</i>	700.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Enchytraeidae indet.	60.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Aelosoma</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Oribatida indet.	140.0	ok	Exclude	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Aturus</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Feltria</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Halacaridae indet.	20.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Hygrobates</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Sperchon</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Microtendipes pedellus</i> group	880.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Paracladopelma</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Polypedilum</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Rheotanytarsus</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Stempellinella</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Tanytarsus</i> sp.	240.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Pagastia</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	840.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Heterotrissocladius marcidus</i>	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Orthoclaadiinae indet.	60.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Synorthocladius</i> sp.	100.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Tvetenia</i> sp.	260.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Pentaneurini indet.	40.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS11-US	fb19-127-004	1	24-Aug-2019	Chironomidae indet.	1420.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Hemerodromia</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Ameletus</i> sp.	620.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Baetidae indet.	60.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Ephemerellidae indet.	240.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Heptageniidae indet.	160.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Rhithrogena</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Capniidae indet.	60.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Claassenia sabulosa</i>	2.0	ok	ok	Macro > 1.5 cm
WQS11-US	fb19-127-004	1	24-Aug-2019	Perlodidae indet.	20.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Pteronarcys californica</i>	3.0	ok	ok	Macro > 1.5 cm
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Pteronarcys</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Arctopsyche</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Hydropsychidae indet.	40.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	<i>Lepidostoma</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Trichoptera indet.	140.0	ok	Exclude	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Egg/egg mass	20.0	Exclude	Exclude	-
WQS11-US	fb19-127-004	1	24-Aug-2019	Nematoda indet.	80.0	Exclude	Exclude	-
WQS11-US	fb19-127-005	2	24-Aug-2019	Acari indet. (terrestrial)	40.0	Exclude	Exclude	Terrestrial
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Stylodrilus heringianus</i>	260.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Chaetogaster diaphanus</i>	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Nais behningi</i>	180.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Nais bretscheri</i>	660.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Nais</i> sp.	60.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Pristina aequiseta</i>	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Aturus</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Feltria</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Protzia</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Hygrobates</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Lebertia</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Sperchon</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	Acari indet.	60.0	ok	Exclude	-
WQS11-US	fb19-127-005	2	24-Aug-2019	Entomobryidae indet.	20.0	Exclude	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Cryptochironomus</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Microtendipes pedellus</i> group	860.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Polypedilum</i> sp.	140.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Micropsectra/Tanytarsus</i> sp. complex	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Stempellinella</i> sp.	60.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	Tanytarsini indet.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Tanytarsus</i> sp.	60.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	520.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Heleniella</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Toetenia</i> sp.	240.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Thienemannimyia</i> group sp.	80.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	Chironomidae indet.	1400.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	Clinocerinae indet.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Dicranota</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Ameletus</i> sp.	820.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Baetis</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Drunella spinifera</i>	40.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS11-US	fb19-127-005	2	24-Aug-2019	EphemereIIDae indet.	180.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Serratella</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	Heptageniidae indet.	120.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Neoleptophlebia</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Pteronarcys californica</i>	5.0	ok	ok	Macro > 1.5 cm
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Hydropsyche</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	Hydroptilidae indet.	20.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Lepidostoma</i> sp.	60.0	ok	ok	-
WQS11-US	fb19-127-005	2	24-Aug-2019	Trichoptera indet.	120.0	ok	Exclude	-
WQS11-US	fb19-127-005	2	24-Aug-2019	<i>Prostoma</i> sp.	20.0	Exclude	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Stylodrilus heringianus</i>	250.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Nais behningi</i>	120.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Nais bretscheri</i>	260.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Nais communis</i>	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	Enchytraeidae indet.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	Oligochaeta indet.	30.0	ok	Exclude	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Aelosoma</i> sp.	20.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Feltria</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Lebertia</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Sperchon</i> sp.	30.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Sperchonopsis</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Microtendipes pedellus</i> group	50.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Polypedilum</i> sp.	170.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Paratanytarsus</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Stempellinella</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Tanytarsus</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Potthastia longimanus</i> group	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Brillia</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	660.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Heleniella</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	Orthocladiinae indet.	40.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Synorthocladius</i> sp.	30.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Thienemanniella</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Tvetenia</i> sp.	170.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	Chironomidae indet.	570.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Neoplasta</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	Simuliidae indet.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Ameletus</i> sp.	280.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	Baetidae indet.	30.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Baetis</i> sp.	90.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Drunella spinifera</i>	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	EphemereIIDae indet.	150.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Serratella</i> sp.	40.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	Heptageniidae indet.	60.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Rhithrogena</i> sp.	60.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Neoleptophlebia</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Zapada cinctipes</i>	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Claassenia sabulosa</i>	1.0	ok	ok	Macro > 1.5 cm
WQS11-US	fb19-127-006	3	24-Aug-2019	Perlodidae indet.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Pteronarcys californica</i>	10.0	ok	ok	Macro > 1.5 cm

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS11-US	fb19-127-006	3	24-Aug-2019	Plecoptera indet.	10.0	ok	Exclude	-
WQS11-US	fb19-127-006	3	24-Aug-2019	Hydropsychidae indet.	30.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Lepidostoma</i> sp.	10.0	ok	ok	-
WQS11-US	fb19-127-006	3	24-Aug-2019	<i>Onocosmoecus</i> sp.	1.0	ok	ok	Macro > 1.5 cm
WQS11-US	fb19-127-006	3	24-Aug-2019	Trichoptera indet.	10.0	ok	Exclude	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Stylodrilus heringianus</i>	32.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Nais behningi</i>	88.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Nais bretscheri</i>	124.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Nais simplex</i>	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Nais</i> sp.	36.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Aturus</i> sp.	8.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Feltria</i> sp.	20.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Hygrobates</i> sp.	20.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Lebertia</i> sp.	20.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Torrenticola</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Microtendipes pedellus</i> group	48.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Rheotanytarsus</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Stempellinella</i> sp.	32.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Tanytarsini indet.	8.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Tanytarsus</i> sp.	44.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Pagastia</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	72.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Heterotrissocladius marcidus</i>	20.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Orthocladiinae indet.	24.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Parametriocnemus</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Synorthocladius</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Thienemannimyia</i> group sp.	52.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Chironomidae indet.	388.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Hemerodromia</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Empididae indet.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Ameletus</i> sp.	92.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Baetidae indet.	4.0	ok	Exclude	Damaged
WQS12	fb19-127-001	1	24-Aug-2019	<i>Drunella</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Ephemerellidae indet.	168.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Serratella</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Epeorus</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Heptageniidae indet.	12.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Capniidae indet.	16.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Haploperla</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Plecoptera indet.	12.0	ok	Exclude	-
WQS12	fb19-127-001	1	24-Aug-2019	<i>Hydropsyche</i> sp.	4.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Hydropsychidae indet.	8.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Hydroptilidae indet.	24.0	ok	ok	-
WQS12	fb19-127-001	1	24-Aug-2019	Trichoptera indet.	32.0	ok	Exclude	Damaged/immature
WQS12	fb19-127-001	1	24-Aug-2019	Acari indet. (terrestrial)	4.0	Exclude	Exclude	Terrestrial
WQS12	fb19-127-002	2	24-Aug-2019	<i>Amphichaeta raptisae</i>	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Nais behningi</i>	63.6	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Nais bretscheri</i>	327.3	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Nais</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Oribatida indet.	9.1	ok	Exclude	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS12	fb19-127-002	2	24-Aug-2019	<i>Aturus</i> sp.	27.3	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Feltria</i> sp.	18.2	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Atractides</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Hygrobates</i> sp.	54.5	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Hygrobatidae indet.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Lebertia</i> sp.	27.3	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Sperchon</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Testudacarus</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Acari indet.	9.1	ok	Exclude	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Demicryptochironomus</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Microtendipes pedellus</i> group	154.5	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Stempellinella</i> sp.	36.4	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Tanytarsini indet.	181.8	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Tanytarsus</i> sp.	54.5	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Potthastia longimanus</i> group	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Brillia</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	100.0	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Heterotrissocladius marcidus</i>	90.9	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Orthocladiinae indet.	54.5	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Synorthocladius</i> sp.	54.5	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Thienemanniella</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Monodiamesa</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Pentaneurini indet.	36.4	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Chironomidae indet.	763.6	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Empididae indet.	18.2	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Hexatoma</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Ameletus</i> sp.	81.8	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Baetis</i> sp.	18.2	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Ephemerellidae indet.	236.4	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Heptageniidae indet.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Ephemeroptera indet.	18.2	ok	Exclude	-
WQS12	fb19-127-002	2	24-Aug-2019	Capniidae indet.	36.4	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Pteronarcella</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Pteronarcys dorsata</i>	1.0	ok	ok	Macro > 1.5 cm
WQS12	fb19-127-002	2	24-Aug-2019	<i>Glossosoma</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Hydropsyche</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Agraylea</i> sp.	54.5	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	<i>Lepidostoma</i> sp.	9.1	ok	ok	-
WQS12	fb19-127-002	2	24-Aug-2019	Trichoptera indet.	54.5	ok	Exclude	-
WQS12	fb19-127-002	2	24-Aug-2019	Egg/egg mass	45.5	Exclude	Exclude	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Stylodrilus heringianus</i>	15.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Amphichaeta raptisae</i>	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Chaetogaster diaphanus</i>	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Chaetogaster diastrophus</i>	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Nais behningi</i>	65.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Nais bretscheri</i>	205.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Nais communis</i>	10.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Pristina aequiseta</i>	10.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Oribatida indet.	5.0	ok	Exclude	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Aturus</i> sp.	5.0	ok	ok	-

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Site	Lab Sample ID	Replicate	Date	Taxon	Total Abundance	Taxa Exclude Completely	Taxa Damaged Exclude	Lab Comments
WQS12	fb19-127-003	3	24-Aug-2019	<i>Feltria</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Hygrobates</i> sp.	40.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Lebertia</i> sp.	20.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Sperchon</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Hydroporinae indet.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Ceratopogoninae indet.	10.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Microtendipes pedellus</i> group	105.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Paracladopelma</i> sp.	10.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Polypedilum</i> sp.	10.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Stictochironomus</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Cladotanytarsus</i> sp.	15.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Stempellinella</i> sp.	15.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Tanytarsini indet.	80.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Tanytarsus</i> sp.	105.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Cricotopus/Orthocladius</i> sp. complex	45.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Heleniella</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Heterotrissocladius marcidus</i>	60.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Hydrobaenus</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Orthoclaadiinae indet.	25.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Psectrocladius</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Rheocricotopus</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Synorthocladius</i> sp.	15.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Tvetenia</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Thienemannimyia</i> group sp.	100.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Chironomidae indet.	130.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Pericomaini indet.	5.0	ok	ok	Previously identified as <i>Pericoma/Telmatoscopus</i> sp. in 2017
WQS12	fb19-127-003	3	24-Aug-2019	Diptera indet.	5.0	ok	Exclude	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Ameletus</i> sp.	95.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Baetidae indet.	15.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Drunella spinifera</i>	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Ephemerellidae indet.	295.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Serratella</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Heptageniidae indet.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Leptophlebiidae indet.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Neoleptophlebia</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Paraleptophlebia</i> sp.	5.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Capniidae indet.	15.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Agraylea</i> sp.	40.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	<i>Lepidostoma</i> sp.	10.0	ok	ok	-
WQS12	fb19-127-003	3	24-Aug-2019	Trichoptera indet.	45.0	ok	Exclude	-
WQS12	fb19-127-003	3	24-Aug-2019	Petromyzontidae indet.	5.0	Exclude	ok	-

Notes:

Samples were collected with a 400 μm CABIN kick net.

2017 to 2019 samples were analyzed by Biologica.

Appendix 10-E *Stream Benthic Invertebrates QA/QC,
Tenas Project, 2017 to 2019*

Appendix 10-E. Stream Benthic Invertebrates QA/QC, Tenas Project, 2017 to 2019

Table 1. Sorting Efficiency and Taxonomy (Benthic Report of Quality Control, Quality Assurance for Sorting Efficiency and Taxonomy for ERM Telkwa Coal, 2017)

Program Year	Biologica Sample ID	Client Sample ID	Sorting Efficiency QC: Spotcheck	Sorting Efficiency QA: Random Whole Resorts	Bray-Curtis Similarity for Taxonomy & Enumeration	Percent Taxonomic Agreement (PTA)	Percent Similarity in Enumeration (PSE)
2017	fb17-089-006	WQS12	-	99.69%	98.28%	100.00%	99.69%
2018	18-157-001	WQS11-U/S	-	95.00%	97.81%	99.69%	100.00%
2019	fb19-127-002	WQS-12-Rep2	-	98.40%	-	-	-
2019	fb19-127-003	WQS-12-Rep3	-	-	98.97%	99.12%	99.71%
2019	fb19-127-004	WQS-11-US-Rep1	95.00%	-	-	-	-
2019	fb19-127-007	WQS-09-Rep1	95.16%	-	-	-	-
2019	fb19-127-008	WQS-09-Rep2	-	-	98.09%	99.04%	100%
2019	fb19-127-010	WQS-08-Rep1	-	96.60%	-	-	-
2019	fb19-127-014	WQS-05-Rep2	97.52%	-	94.53%	99.68%	99.05%
2019	fb19-127-018	WQS-04B-Rep3	98.73%	-	-	-	-
2019	fb19-127-019	WQS-02-Rep1	-	99.06%	-	-	-
2019	fb19-127-020	WQS-02-Rep2	95.48%	-	-	-	-
2019	fb19-127-022	WQS-01-Rep1	98.72%	-	-	-	-
2019	fb19-127-024	WQS-01-Rep3	-	-	98.96%	99.54%	99.77%
2019	fb19-127-055	WQS-20-Rep1	95.00%	-	-	-	-
2019	fb19-127-059	WQS-21-Rep2	98.78%	-	-	-	-
2019	fb19-127-061	WQS-22-Rep1	-	-	99.84%	100.00%	99.68%
2019	fb19-127-062	WQS-22-Rep2	-	99.37%	-	-	-
2019	fb19-127-064	WQS-23-Rep1	100.00%	-	-	-	-
2019	fb19-127-068	WQS-24-Rep2	-	95.00%	-	-	-
2019	fb19-127-070	WQS-25-Rep1	97.52%	-	-	-	-
2019	fb19-127-074	DUP-Rep2	100.00%	-	-	-	-

Notes:

Sorting efficiency: [(total count – organisms recovered in spot check and/or re-sort) / total count] x 100%

Spot Check: 25% of sample debris resorted for 23% of samples

Table 2. QA Identification

Program Year	Biologica Sample #	Client Sample #	Agreements	Disagreements/ Misidentification	Difference in Resolution	Difference in Enumeration	Total Organisms Found in Original Sample	Total Organisms Found in QA	Percent Taxonomic Agreement (PTA)	Percent Agreement in Enumeration
2017	fb17-089-006	WQS12	34	0	6	1	320	319	100.00%	NA
2018	18-157-001	WQS11-U/S	33	1	6	7	320	320	99.69%	100.00%
2019	fb19-127-003	WQS-12-Rep3	47	3	3	2	340	339	99.12%	99.71%
2019	fb19-127-008	WQS-09-Rep2	38	3	3	2	314	314	99.04%	100.00%
2019	fb19-127-014	WQS-05-Rep2	38	1	3	3	317	314	99.68%	99.05%
2019	fb19-127-024	WQS-01-Rep3	39	2	4	1	433	432	99.54%	99.77%
2019	fb19-127-061	WQS-22-Rep1	23	0	1	1	310	311	100.00%	99.68%

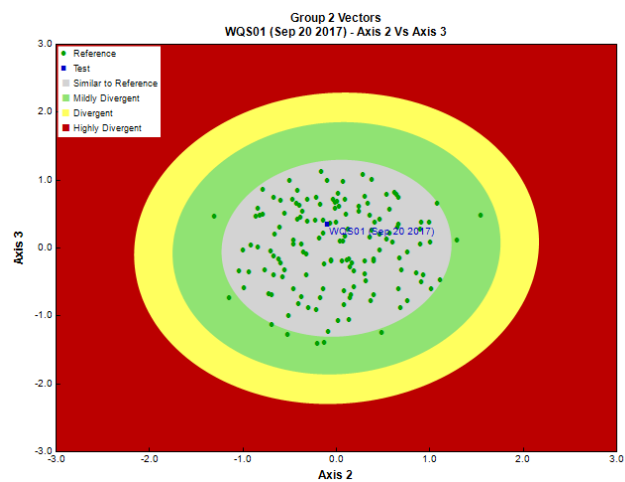
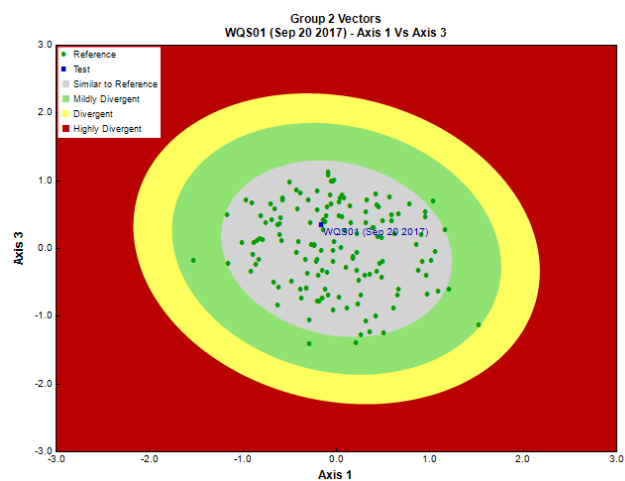
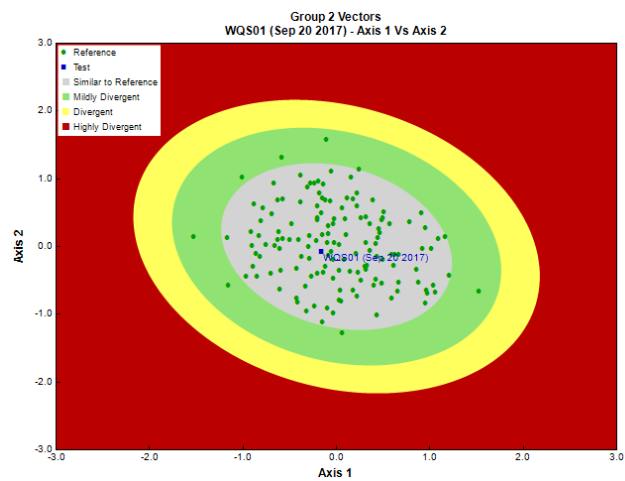
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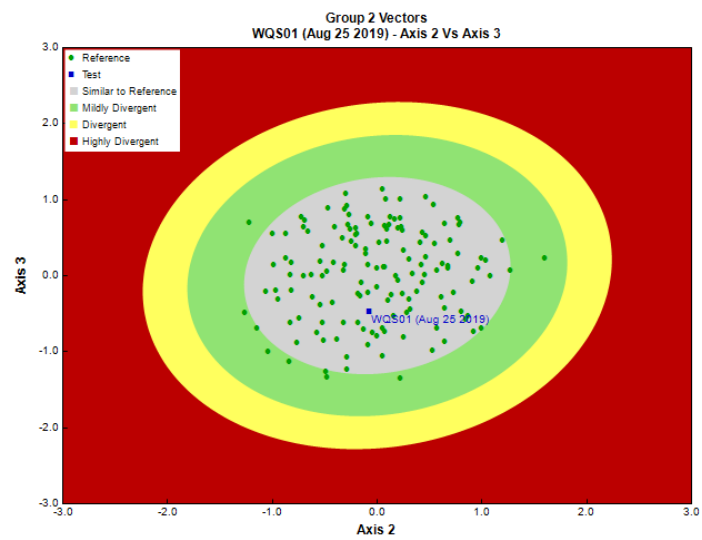
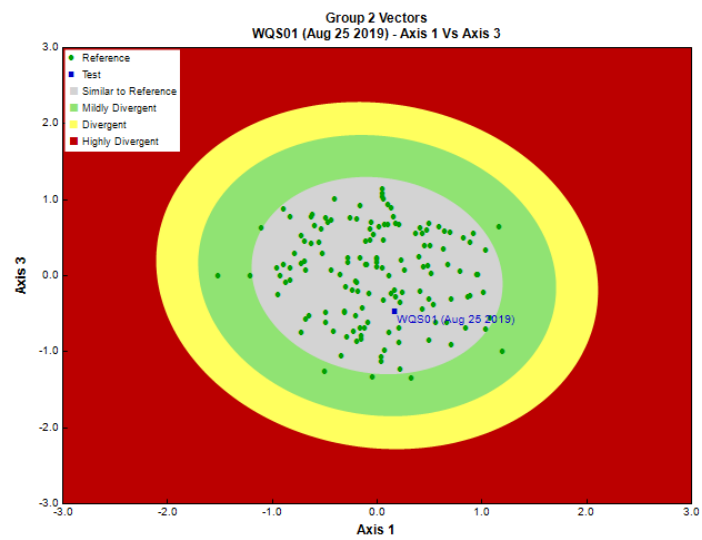
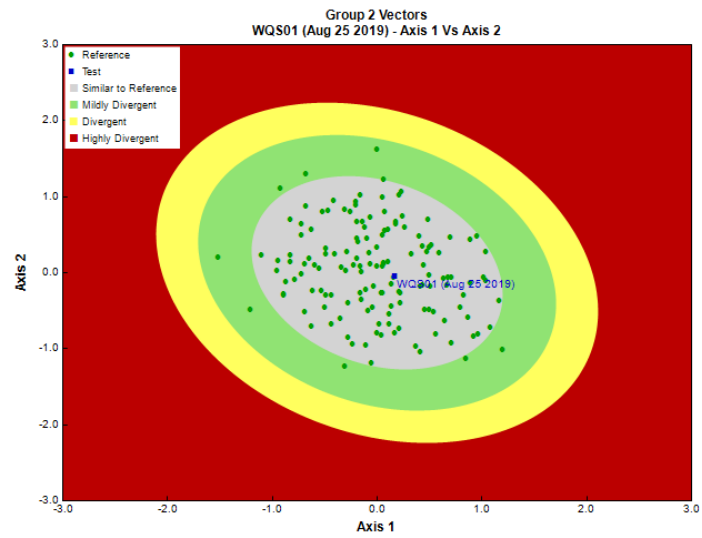
Identification Agreement Rate: [(# incorrect identifications/total organisms found in audit) x100%]-100

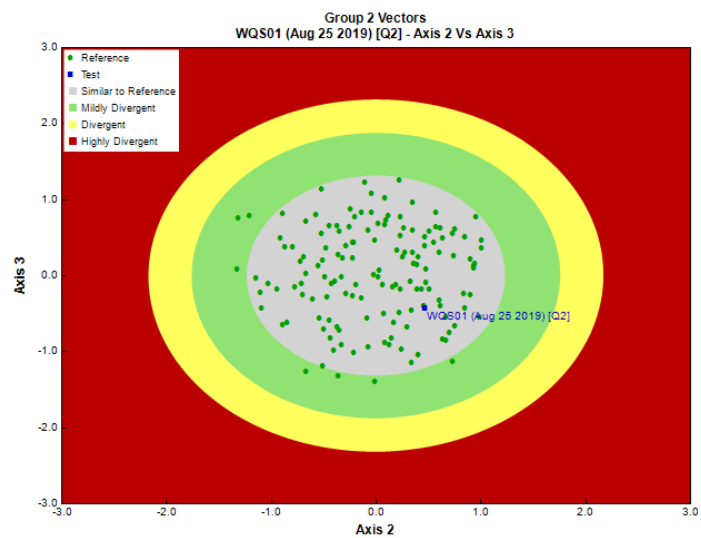
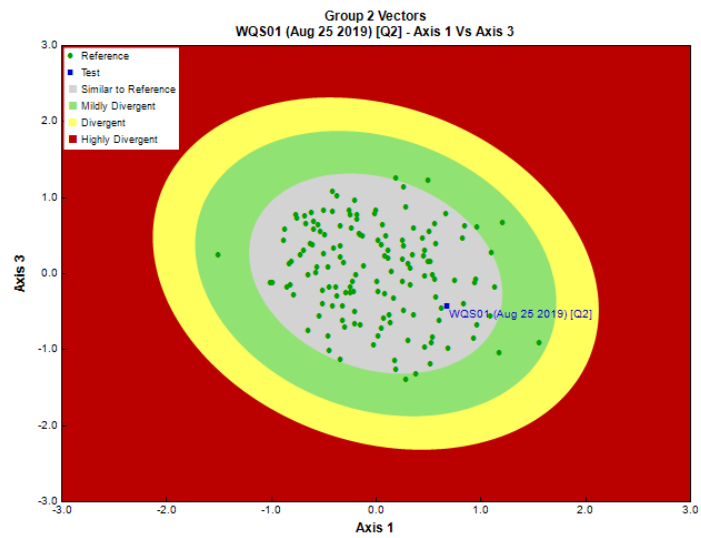
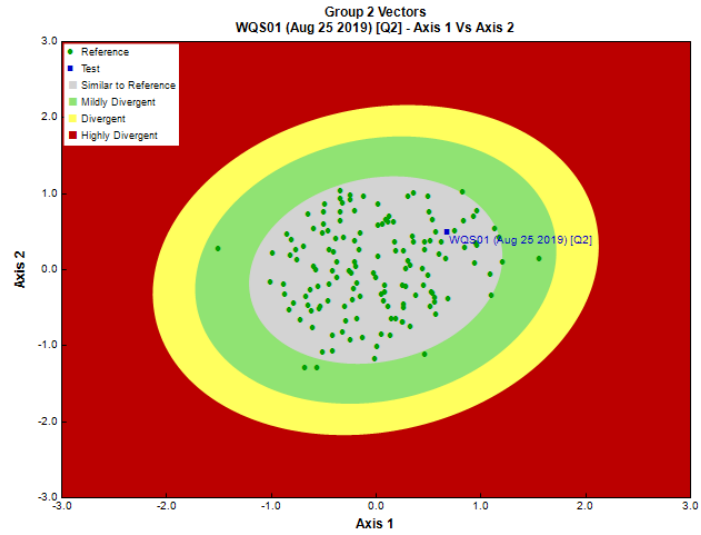
Enumeration, questionable taxonomic resolution and insufficient taxonomic resolution are not included in the % Agreement Rate

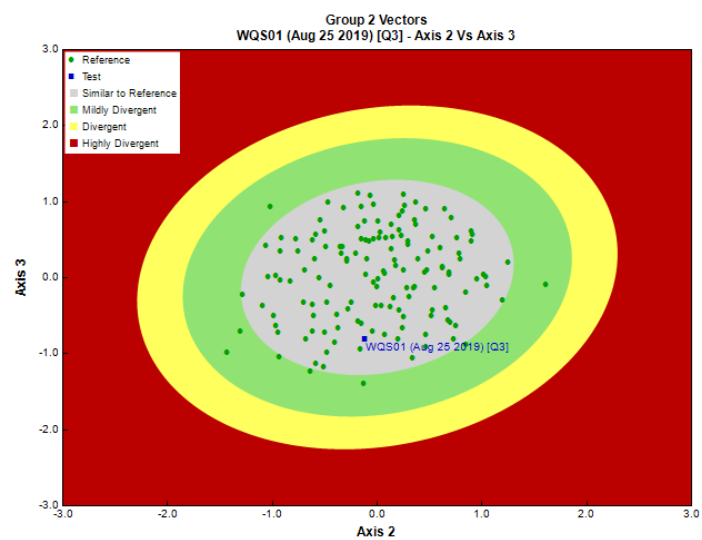
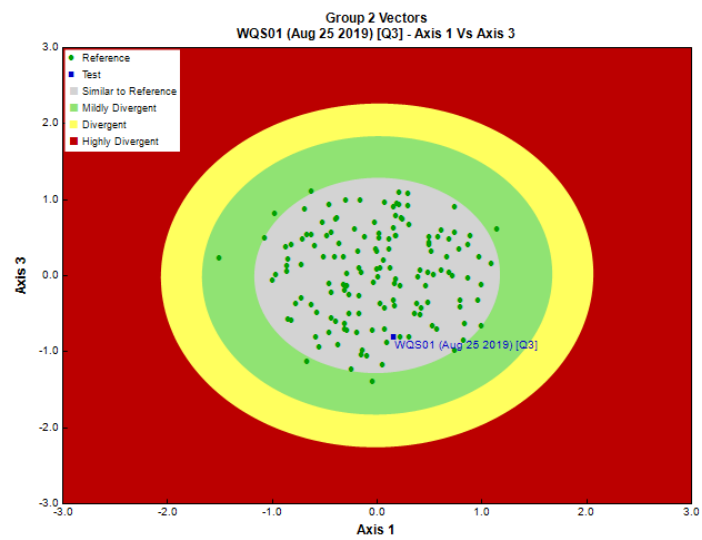
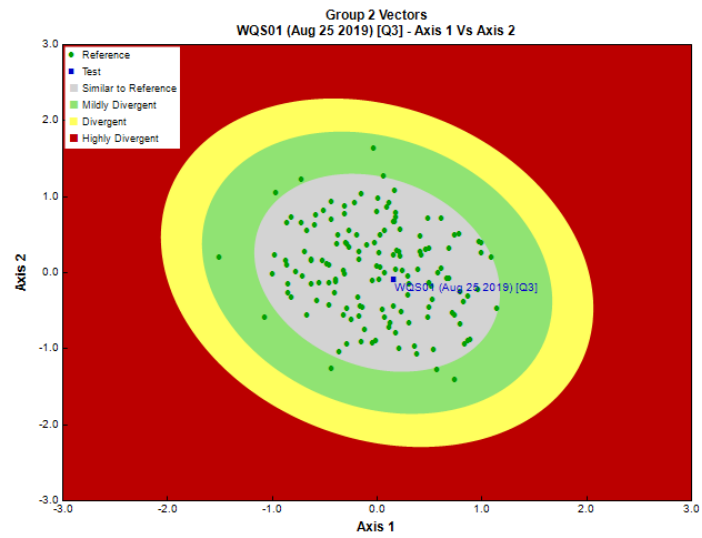
Appendix 10-F *Stream Benthic Invertebrates CABIN Analysis,
Tenas Project*

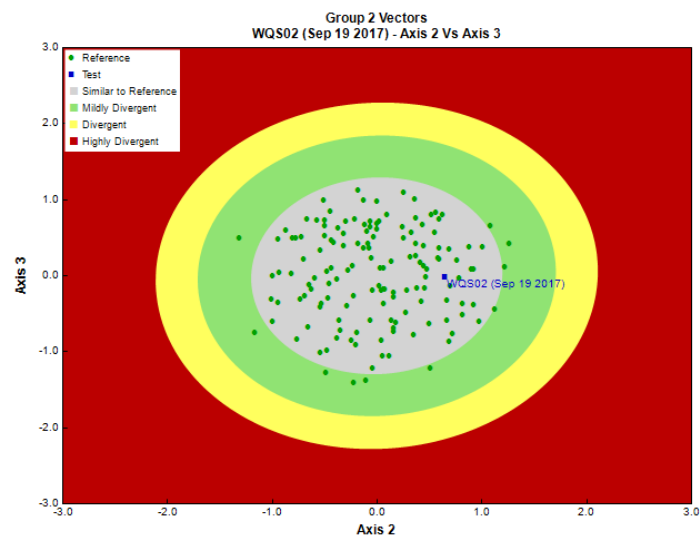
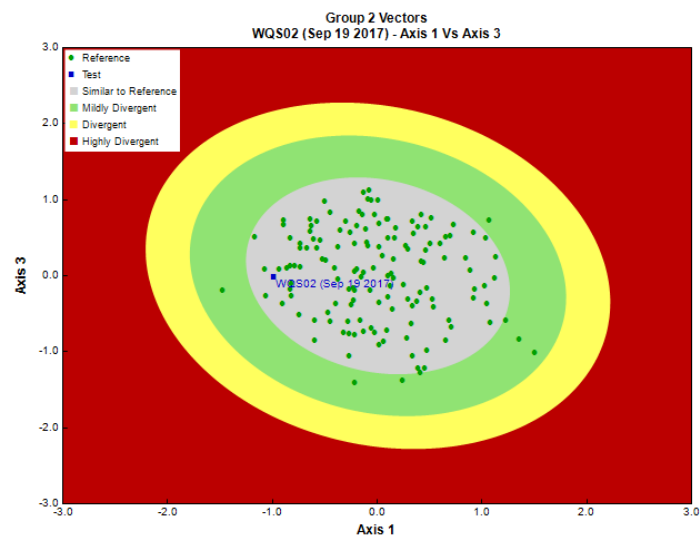
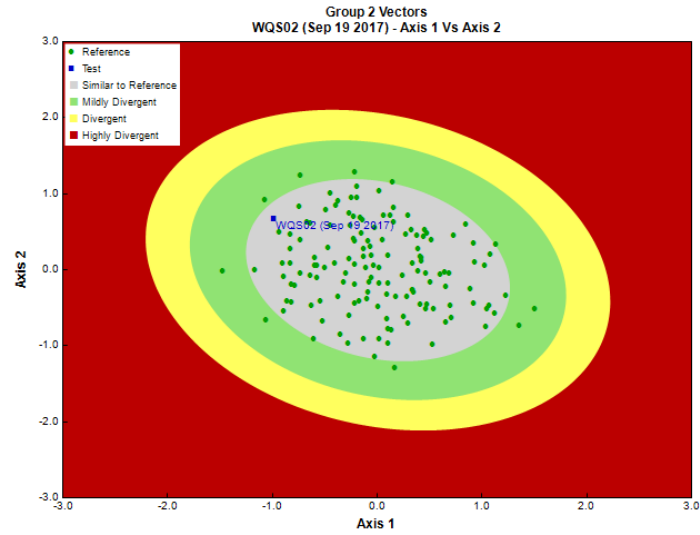
APPENDIX 10-F. STREAM BENTHIC INVERTEBRATES CABIN ANALYSIS, TENAS PROJECT

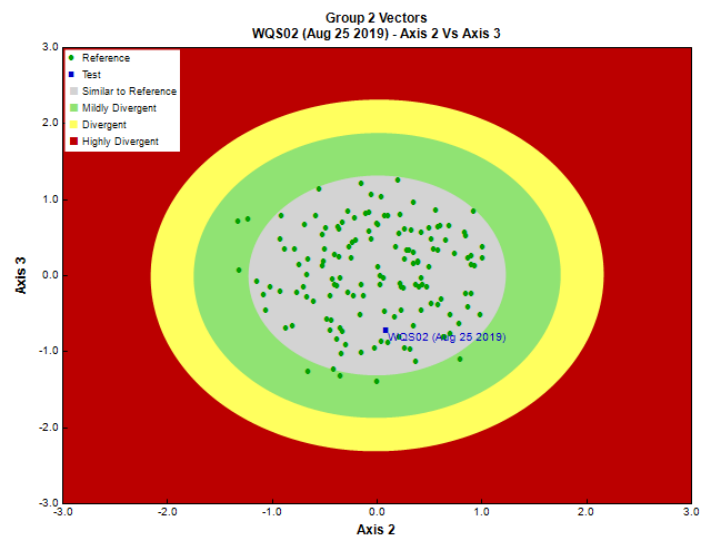
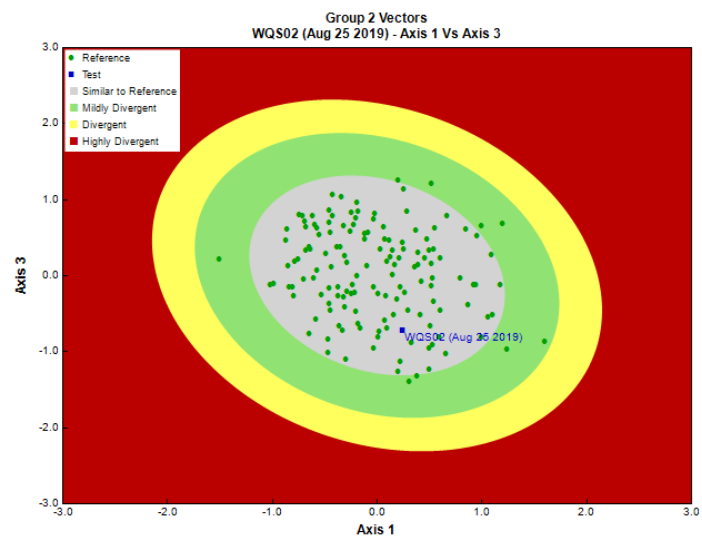
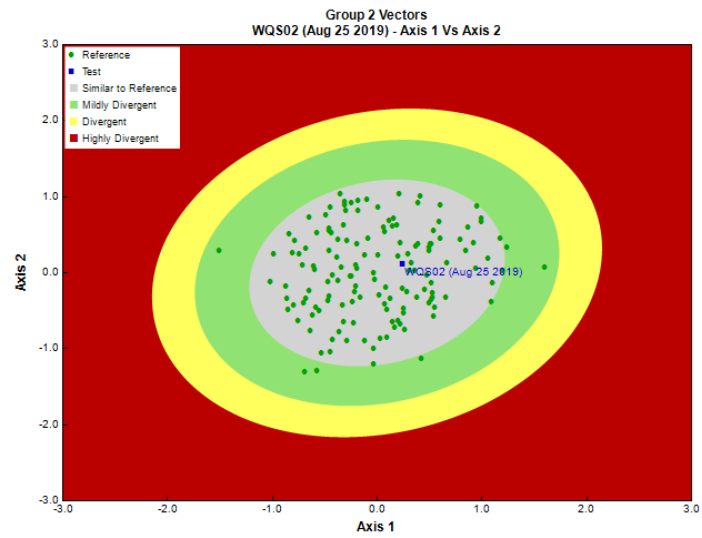


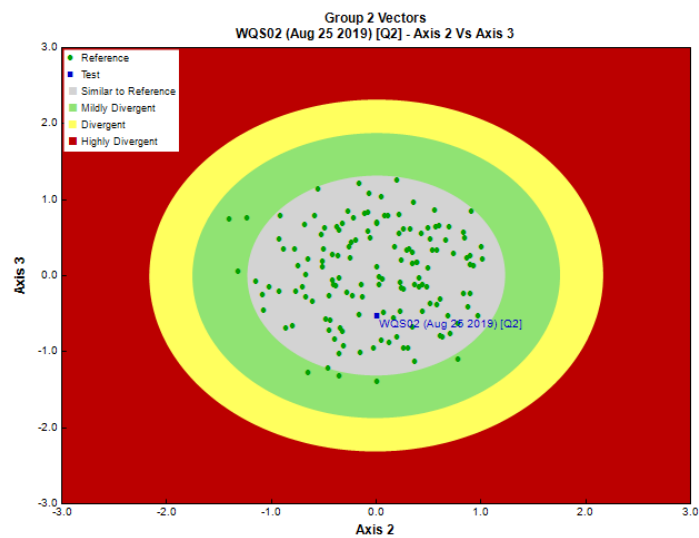
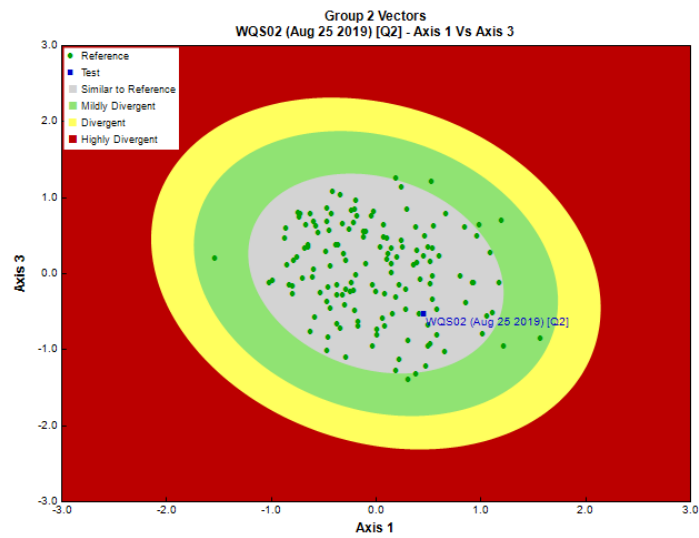
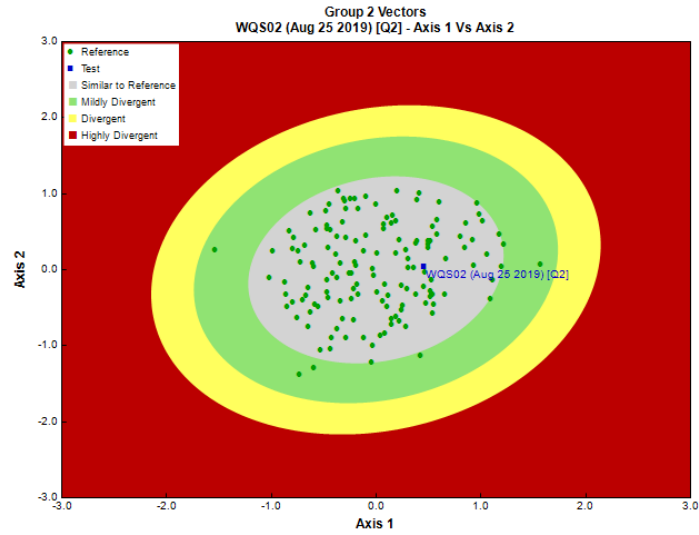


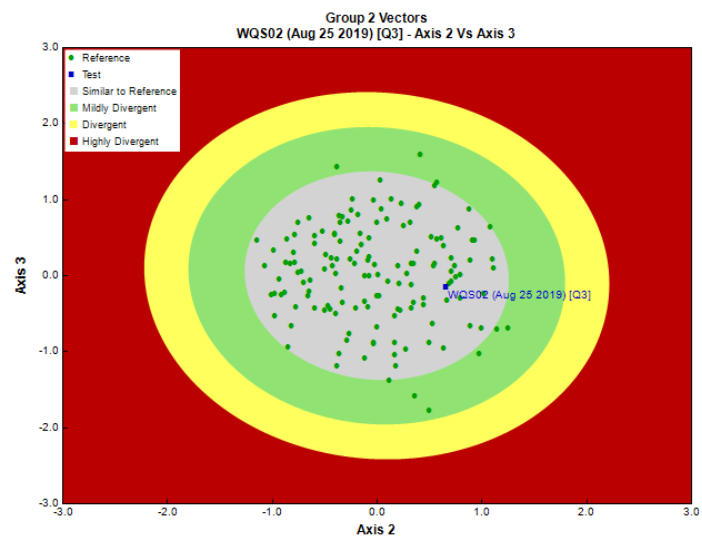
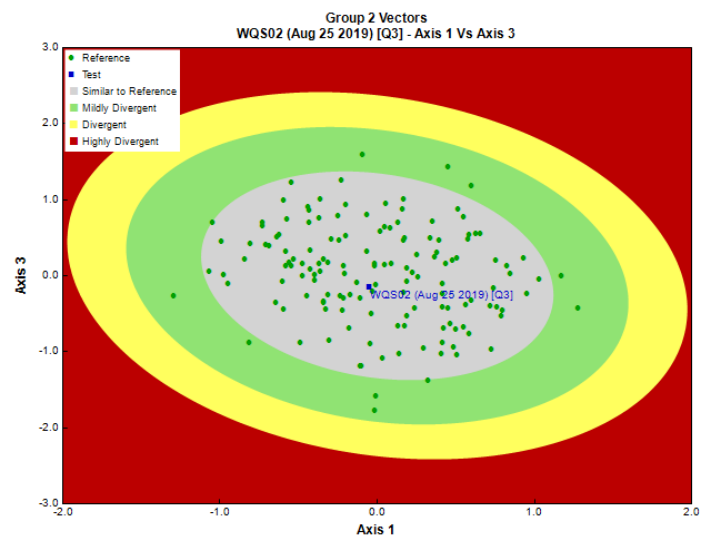
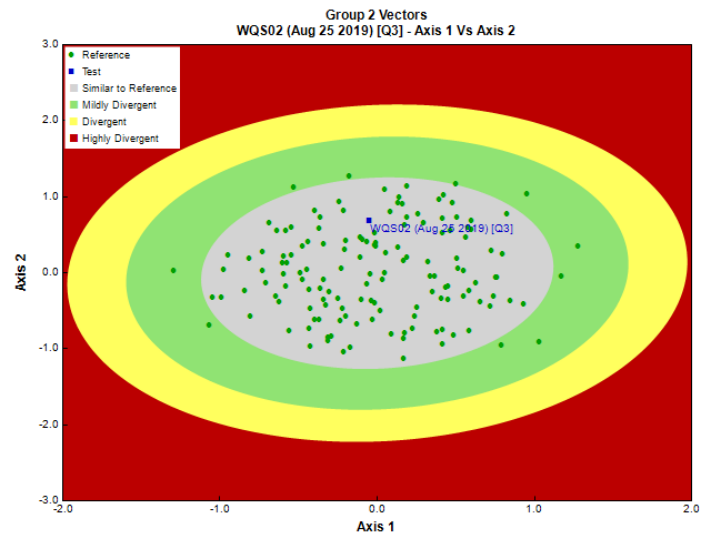


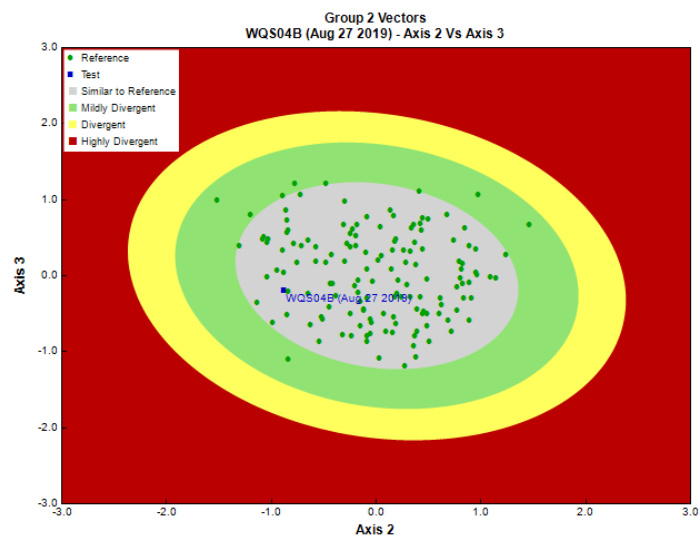
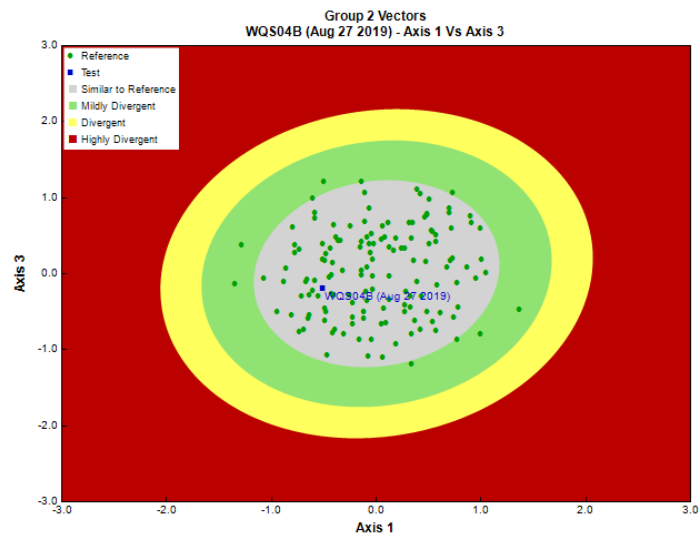
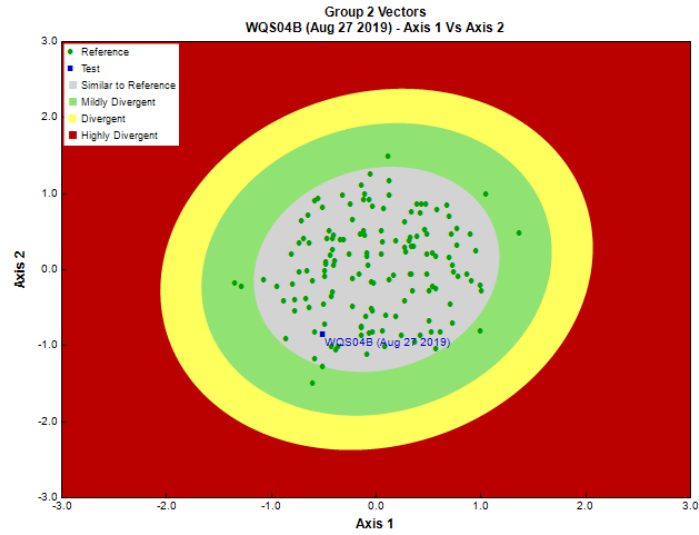


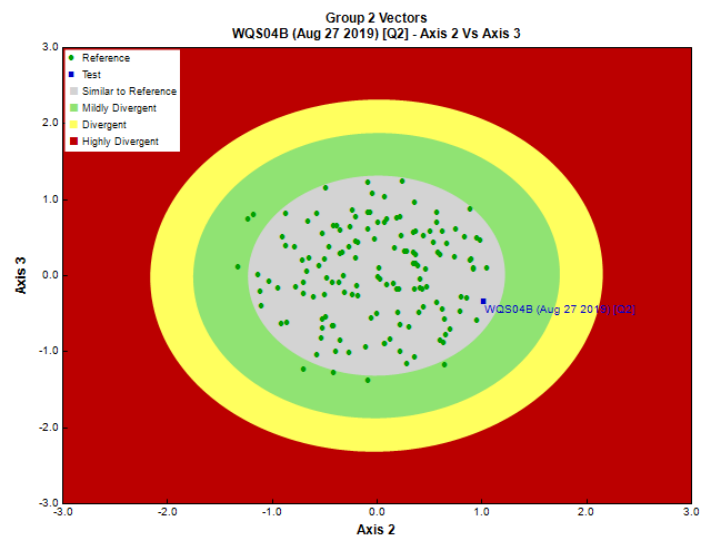
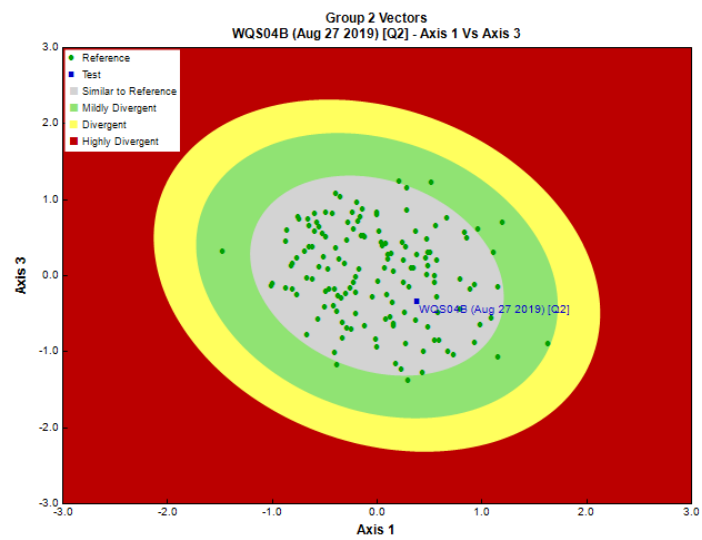
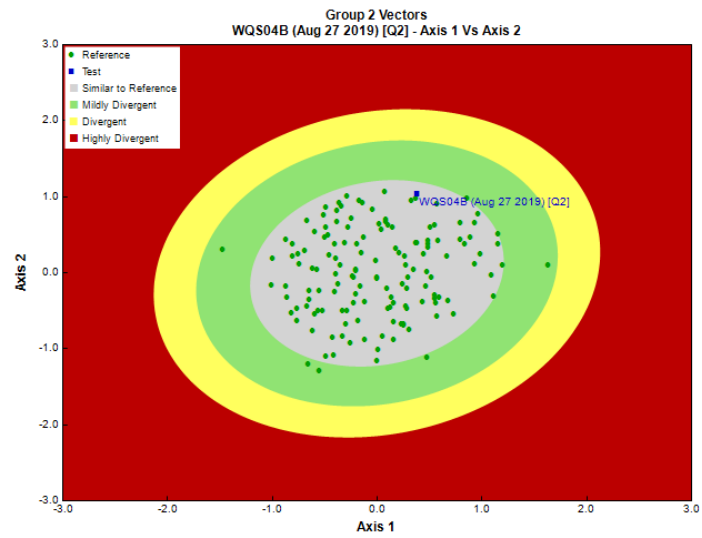


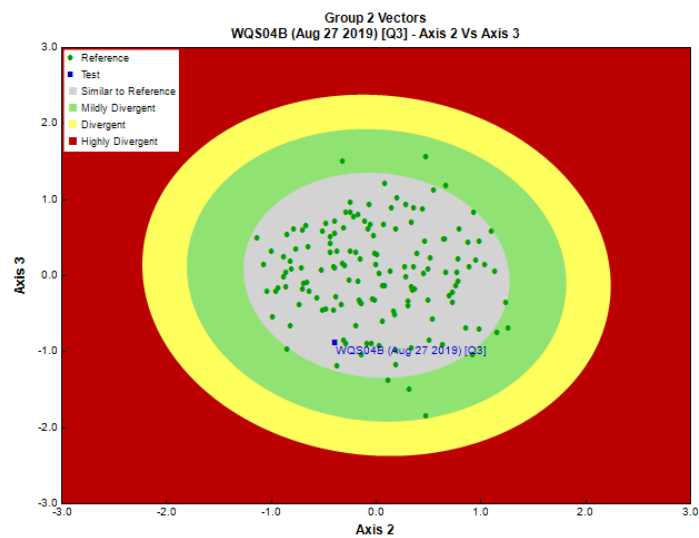
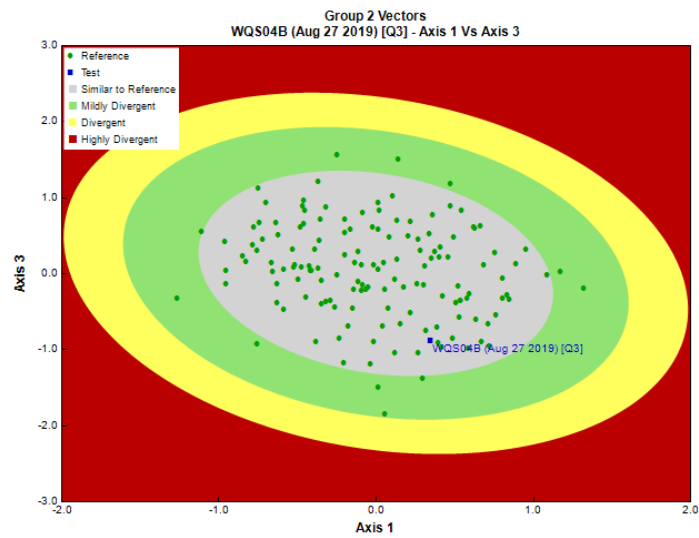
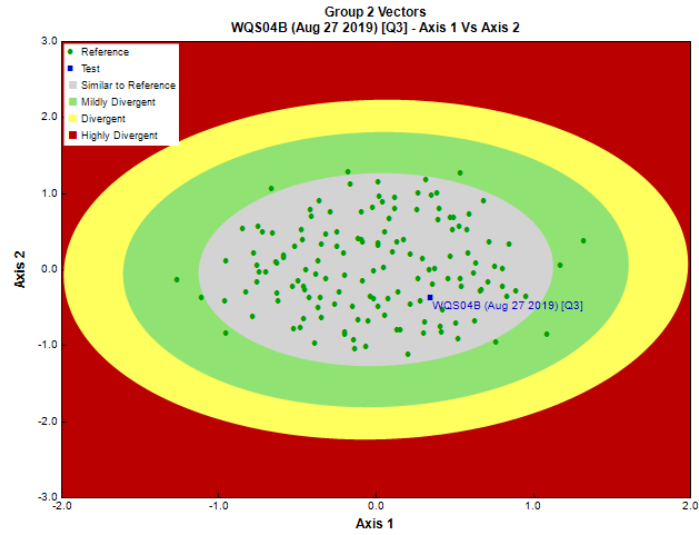


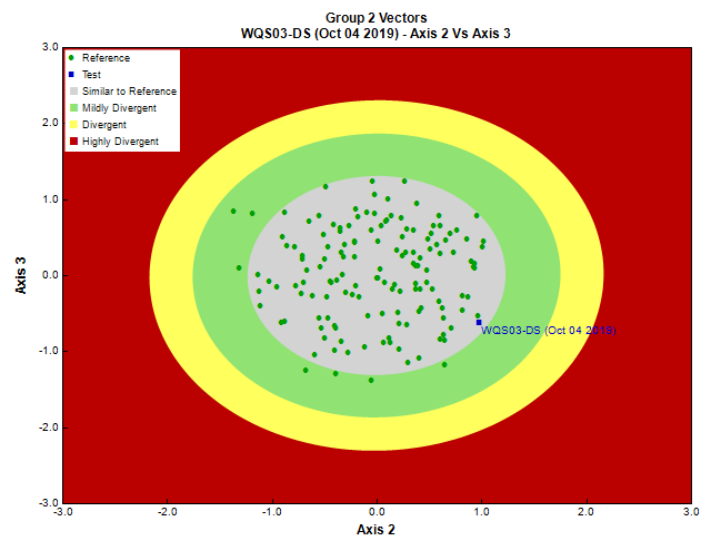
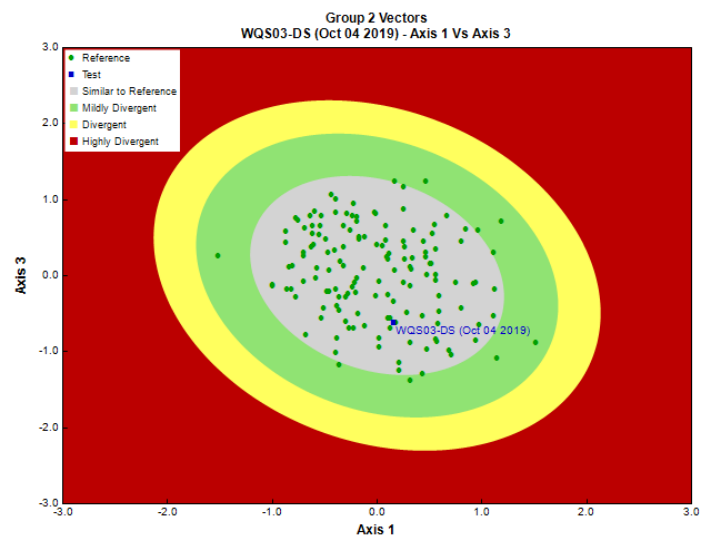
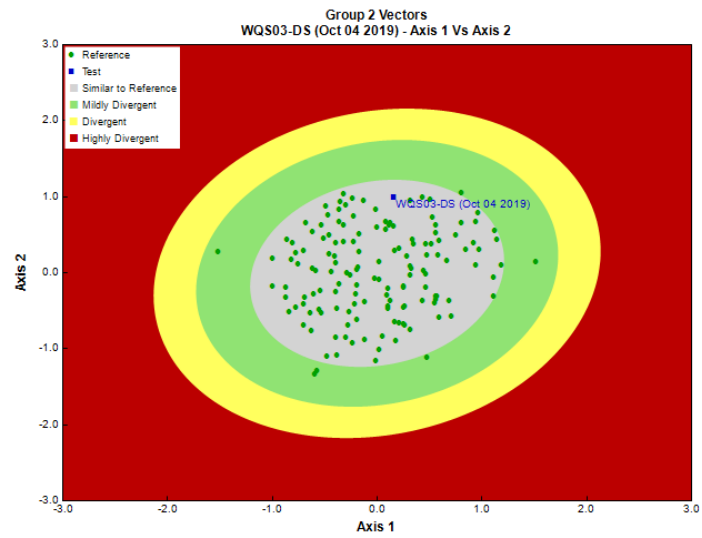


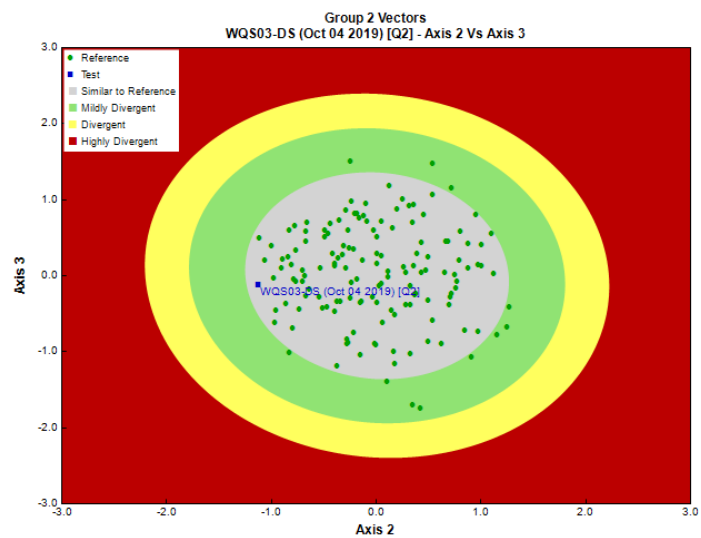
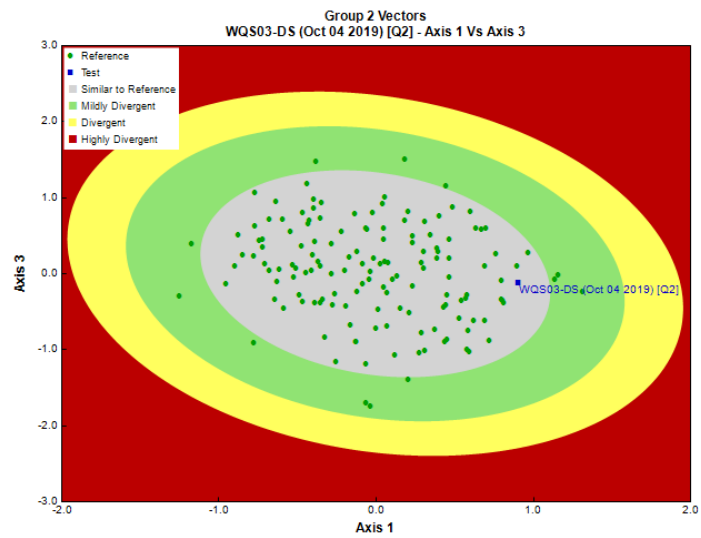
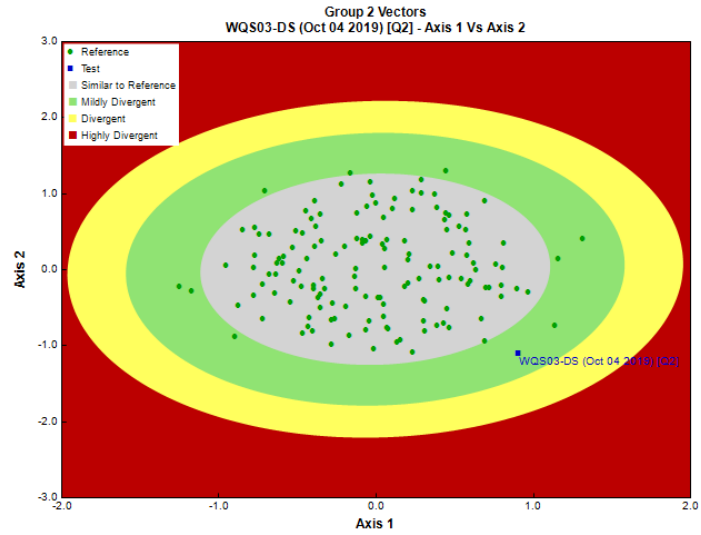


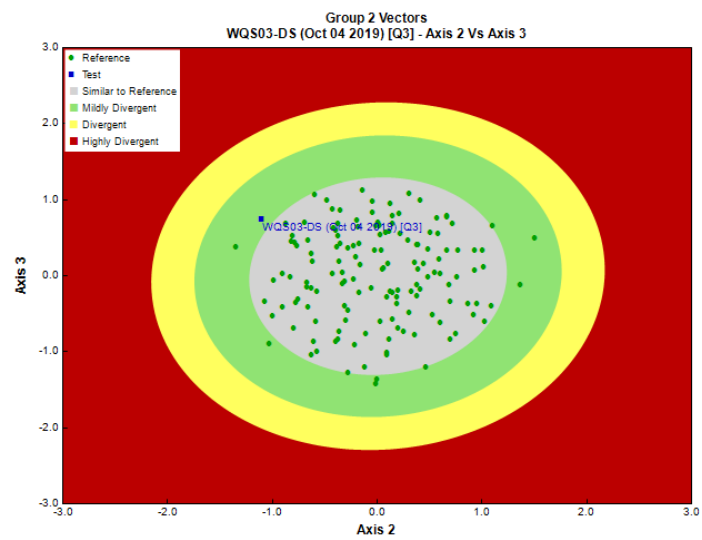
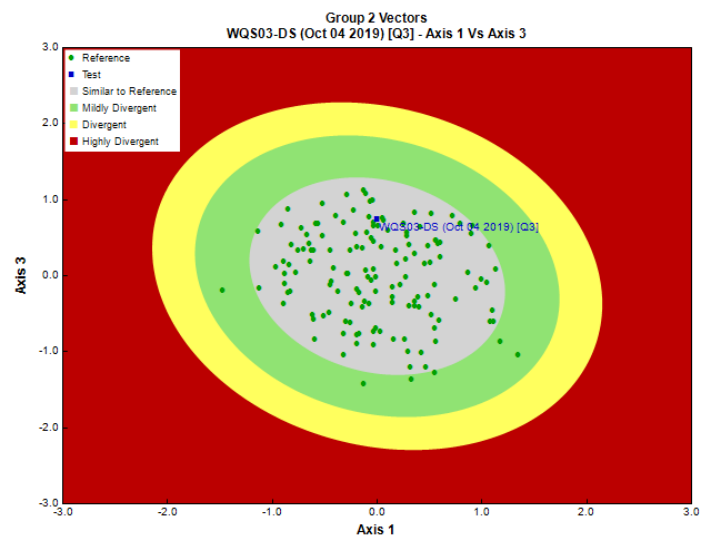
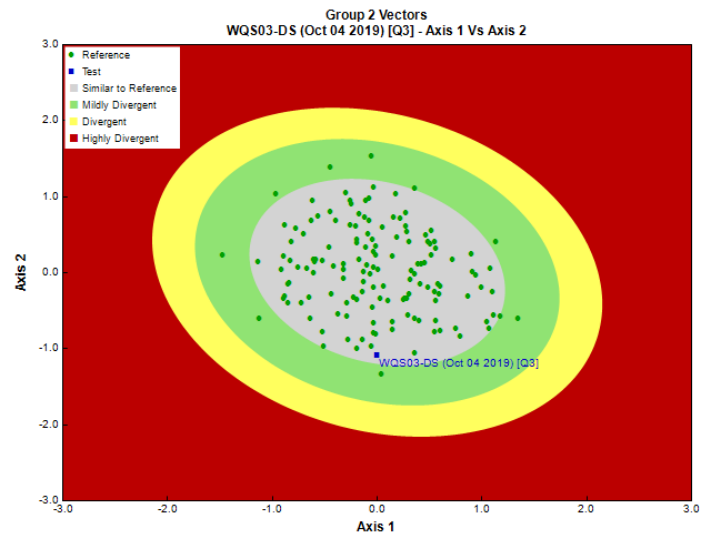


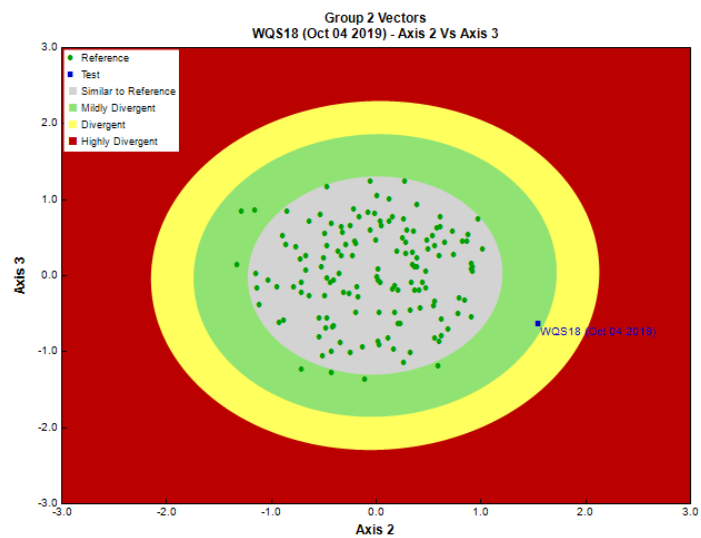
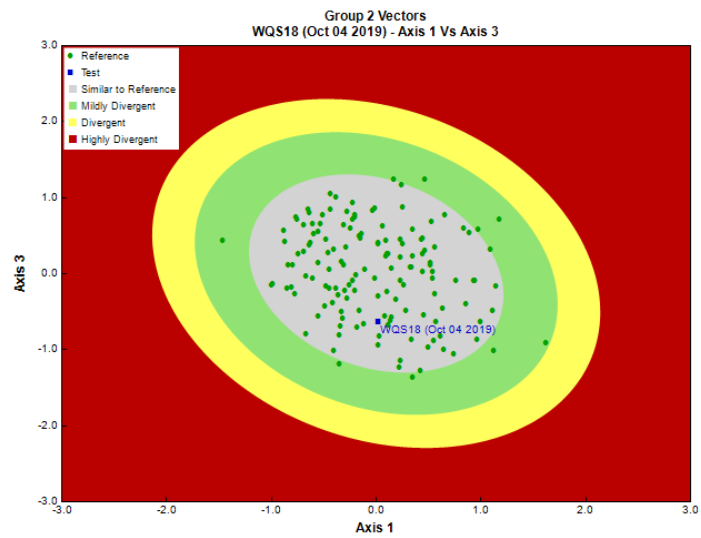
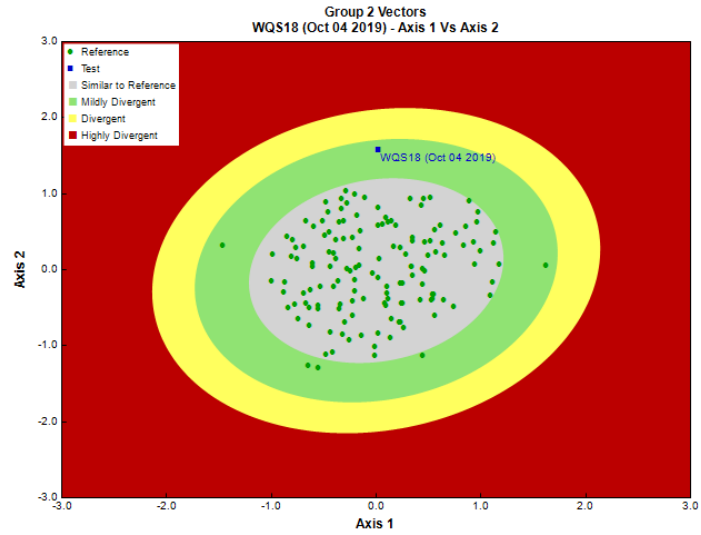


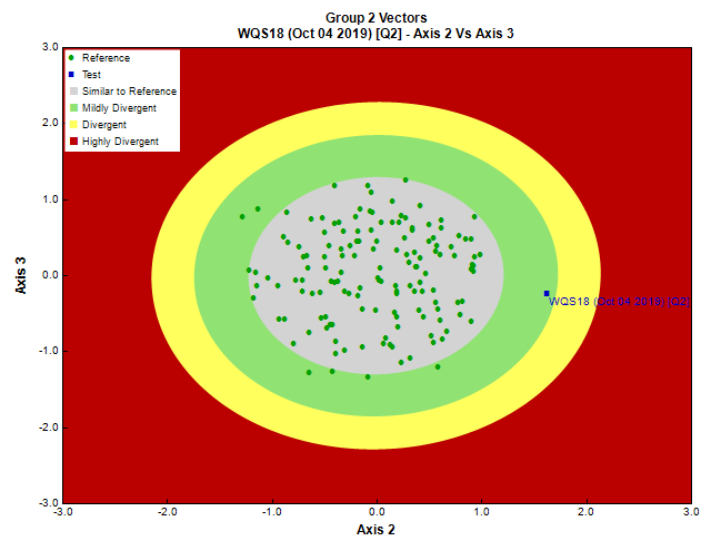
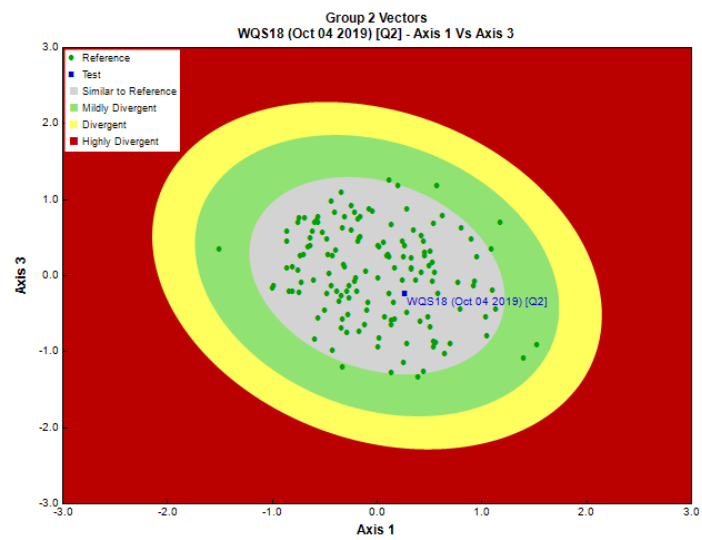
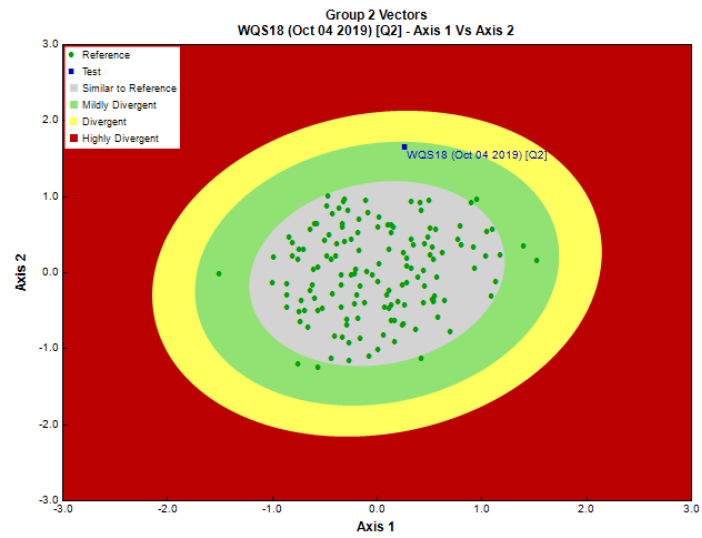


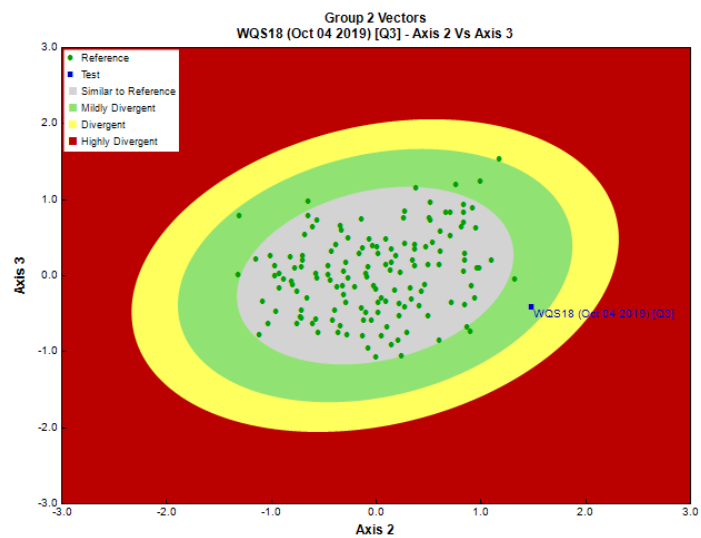
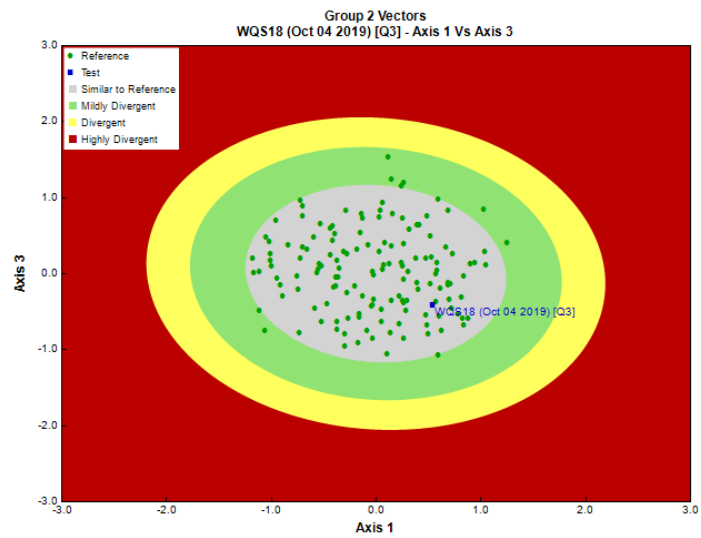
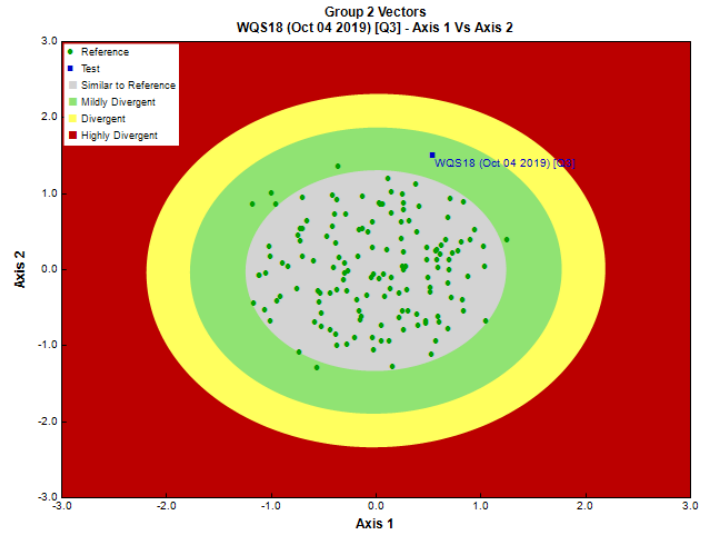


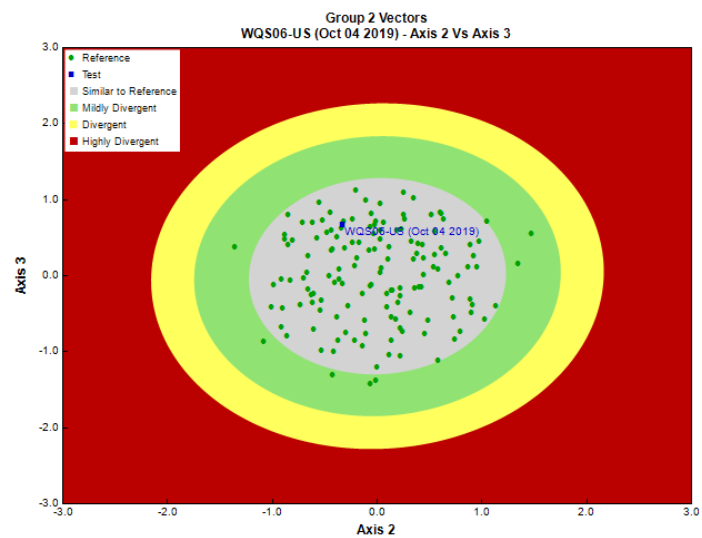
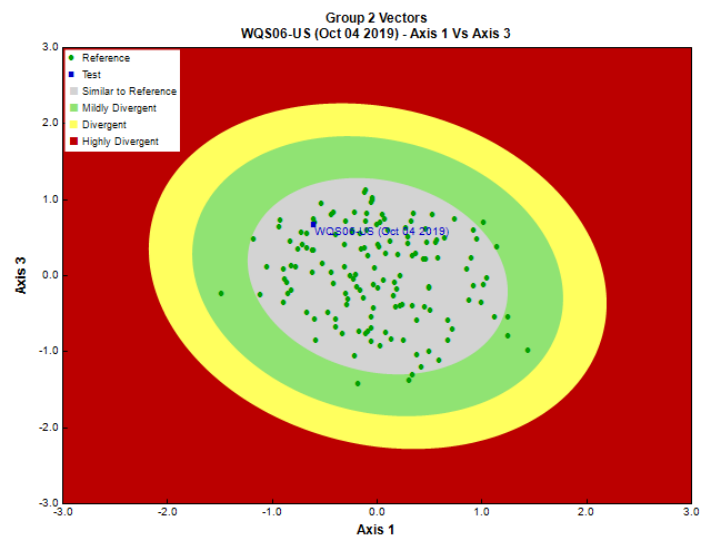
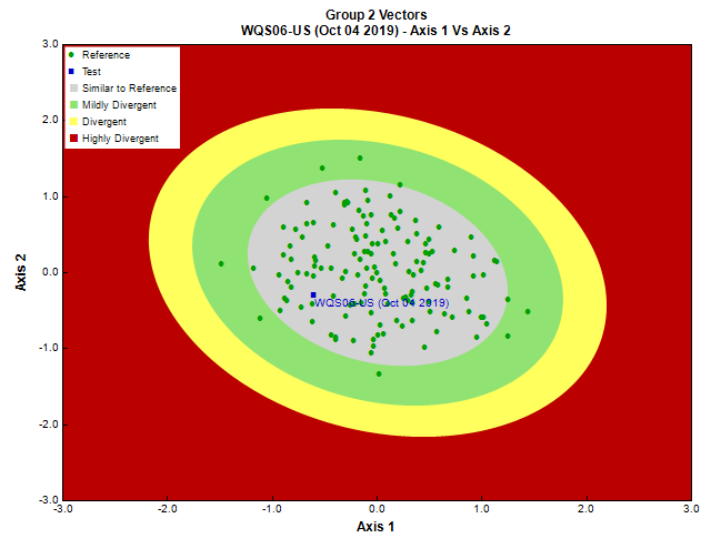


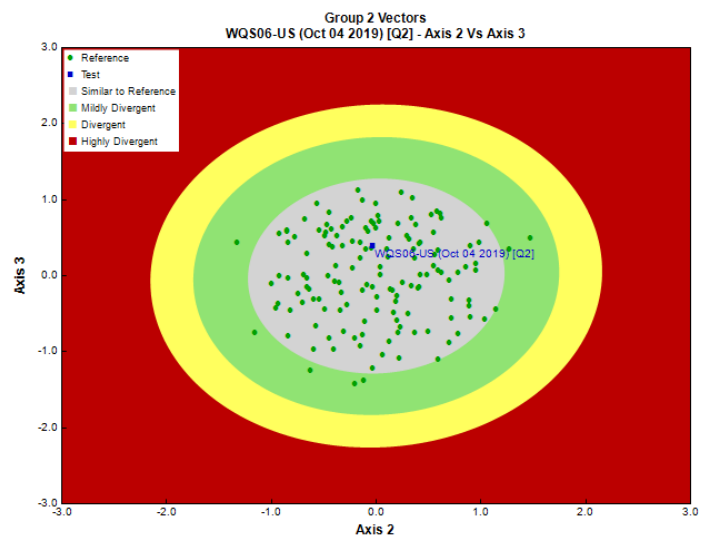
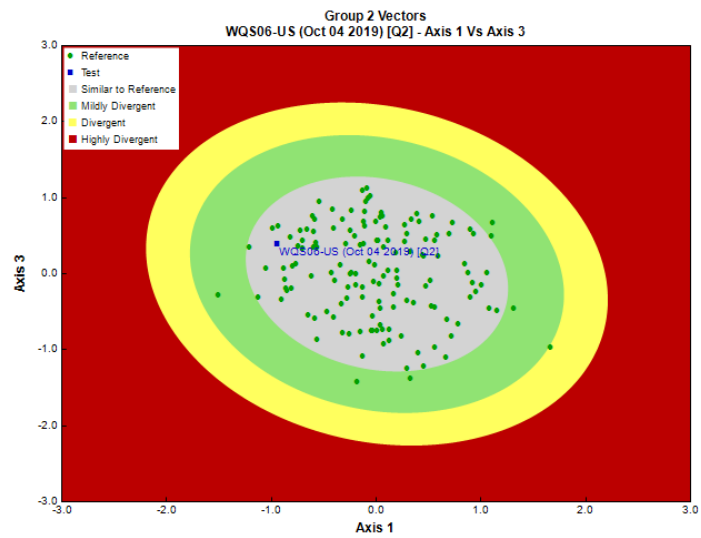
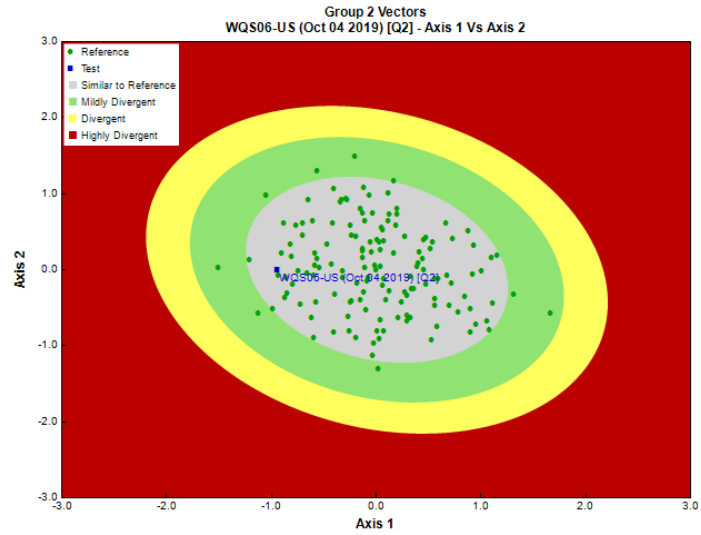


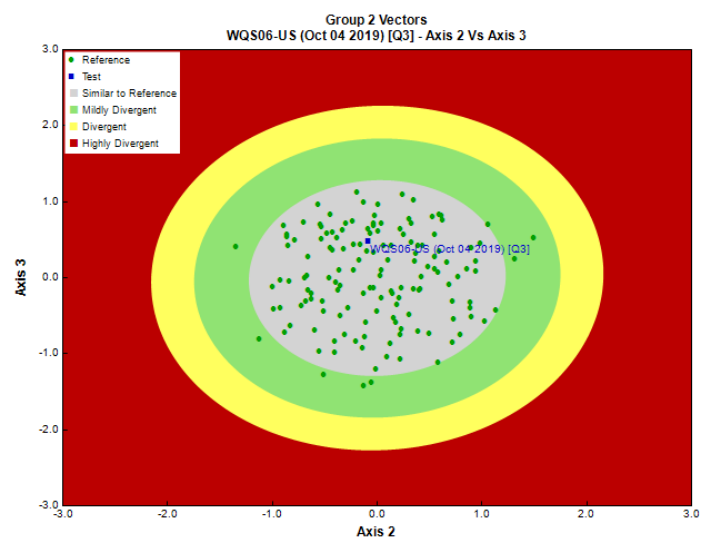
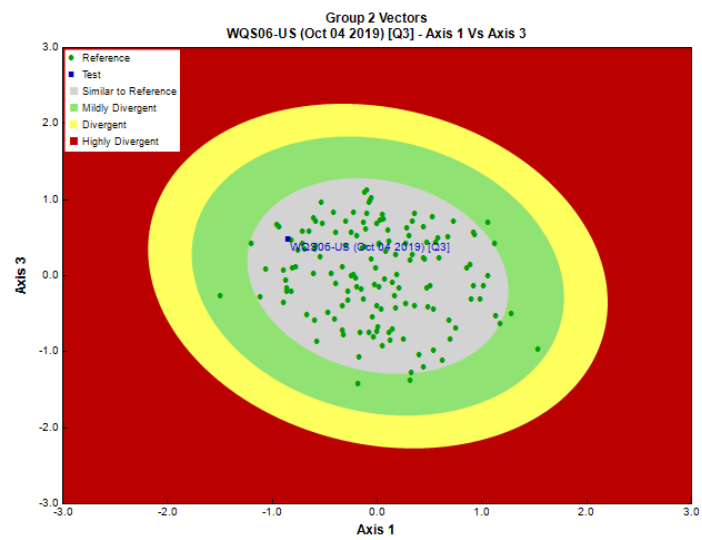
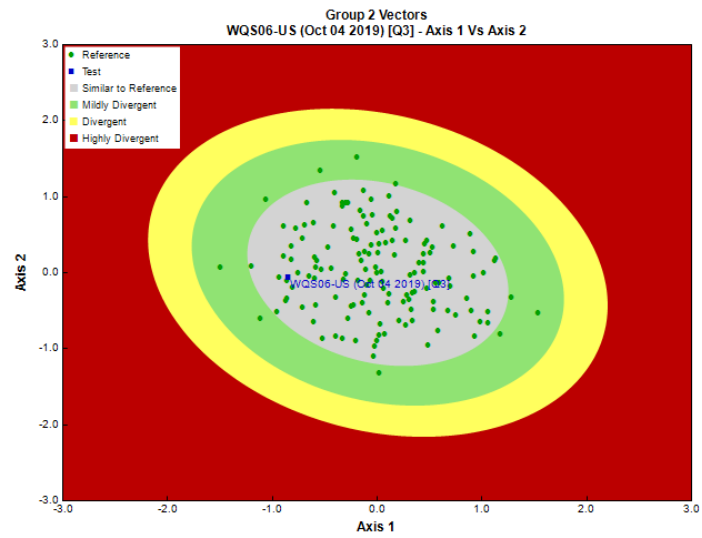


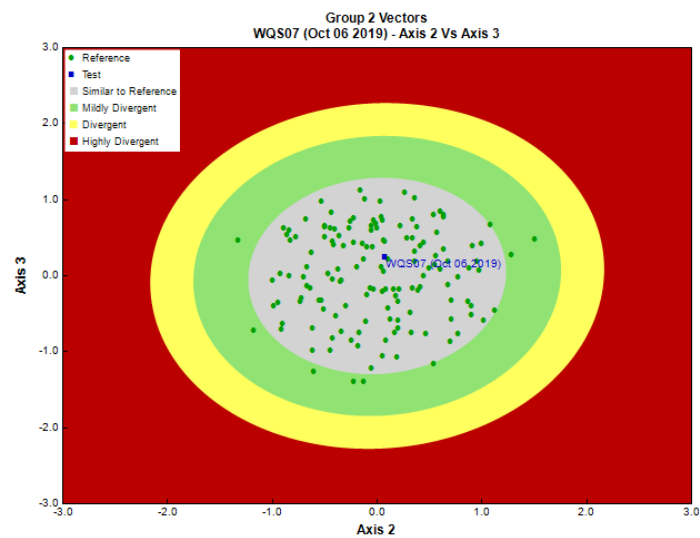
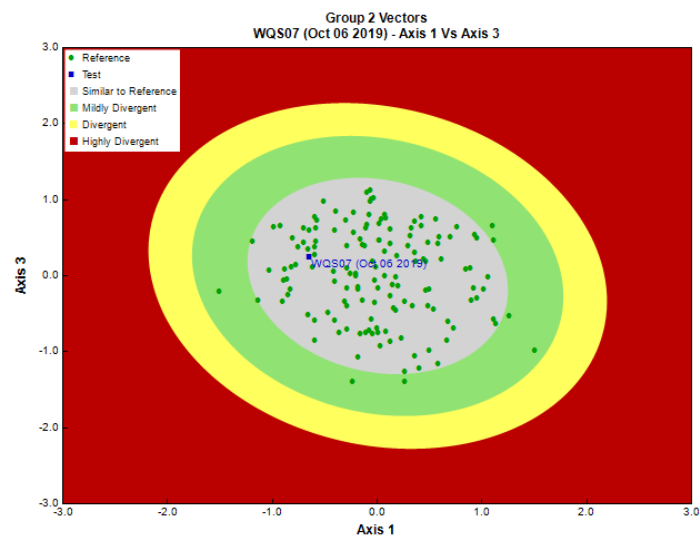
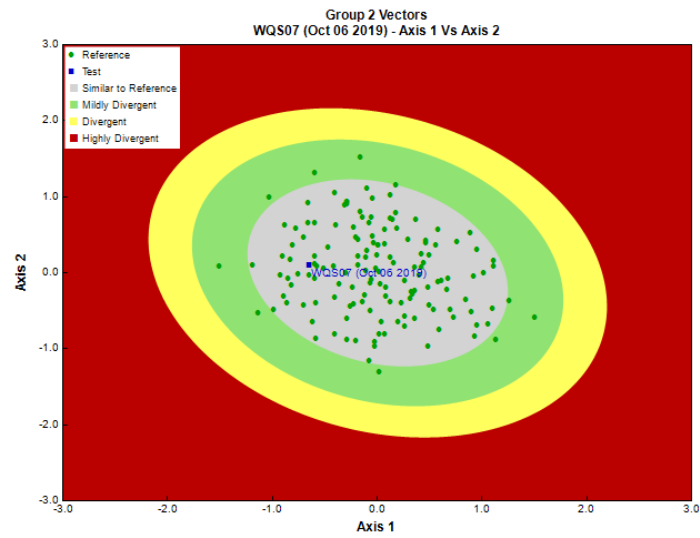


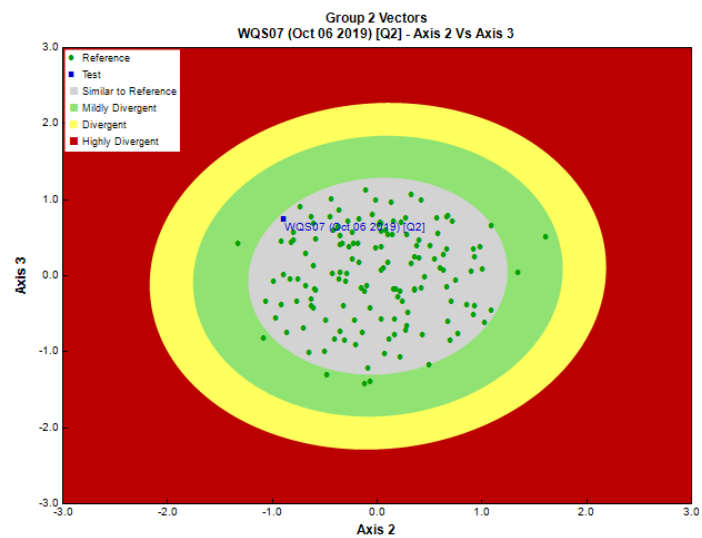
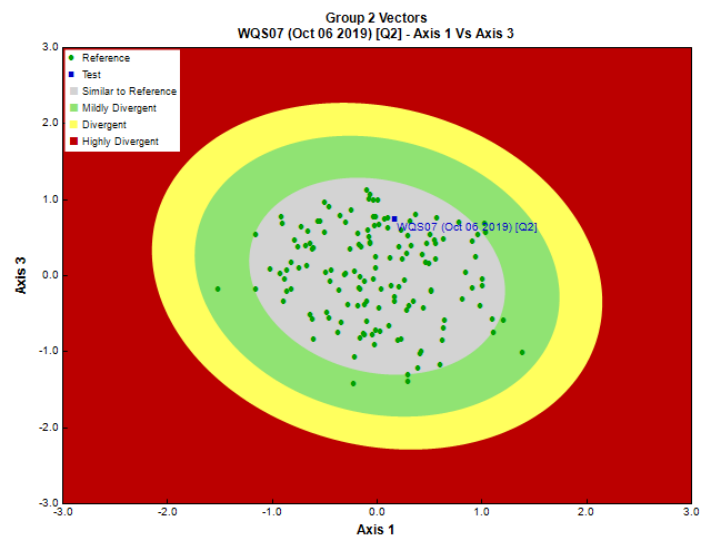
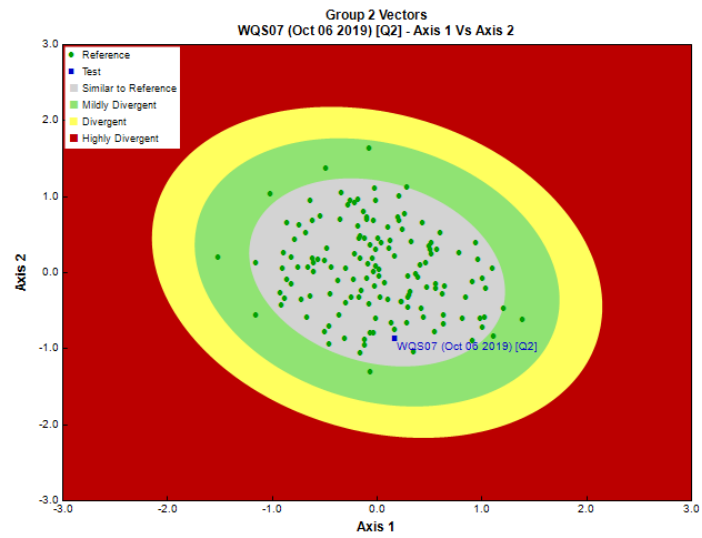


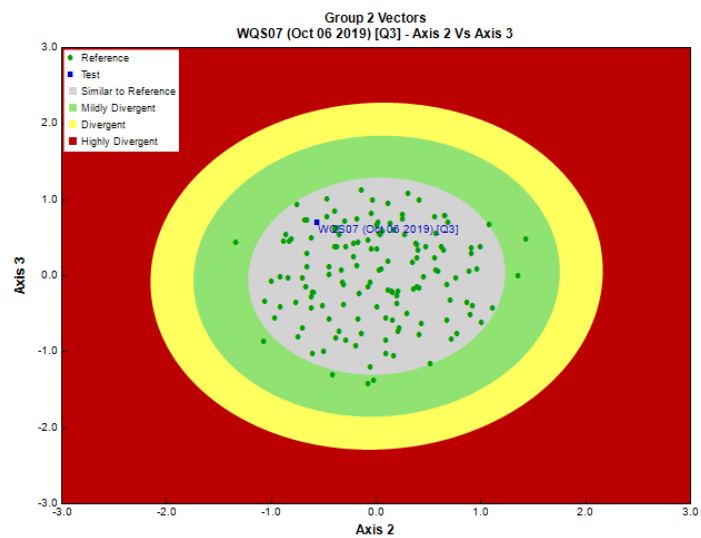
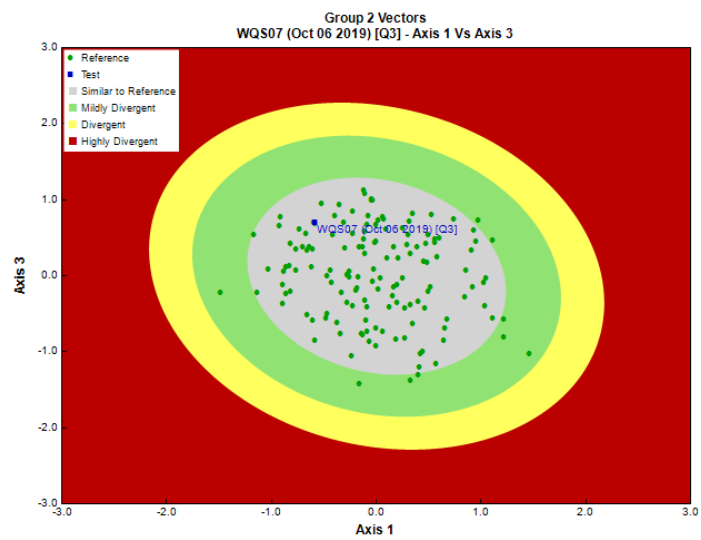
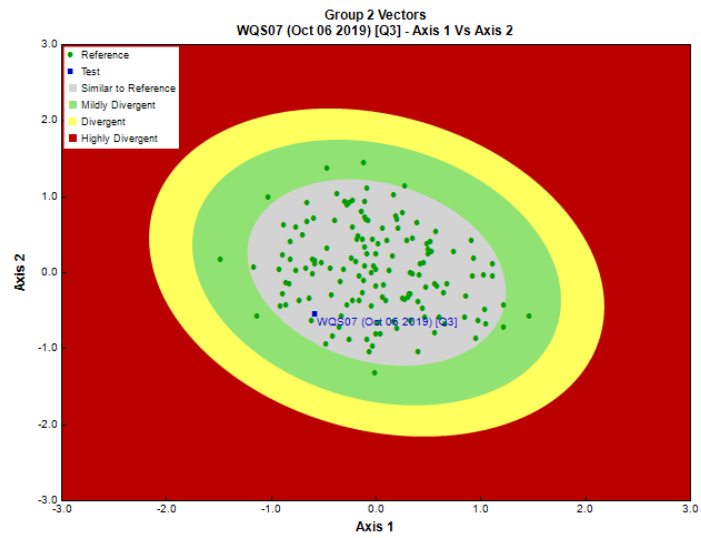


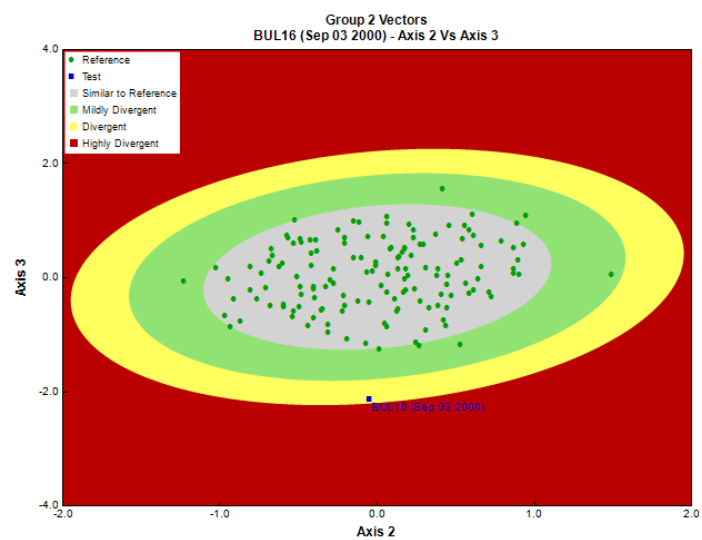
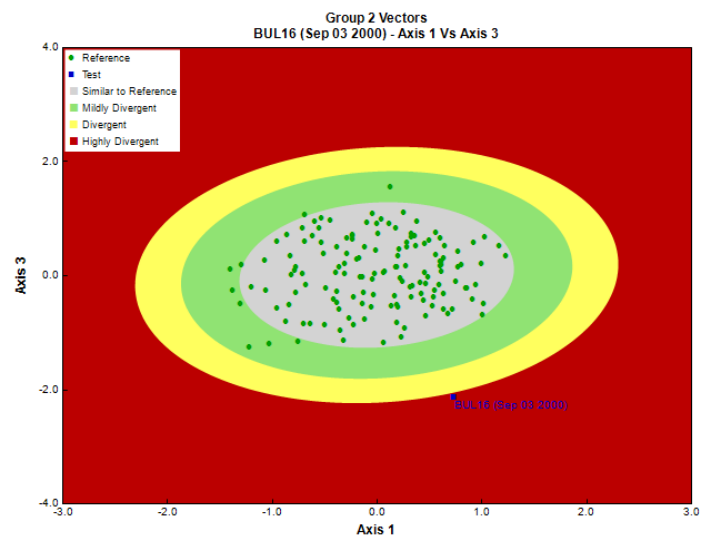
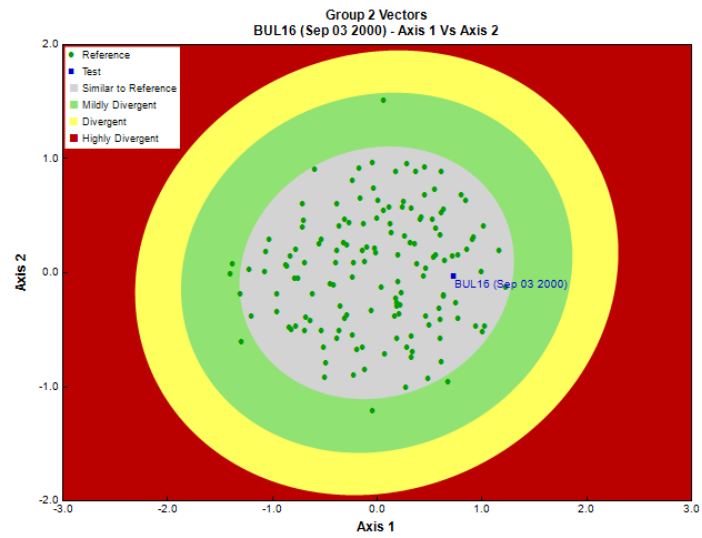


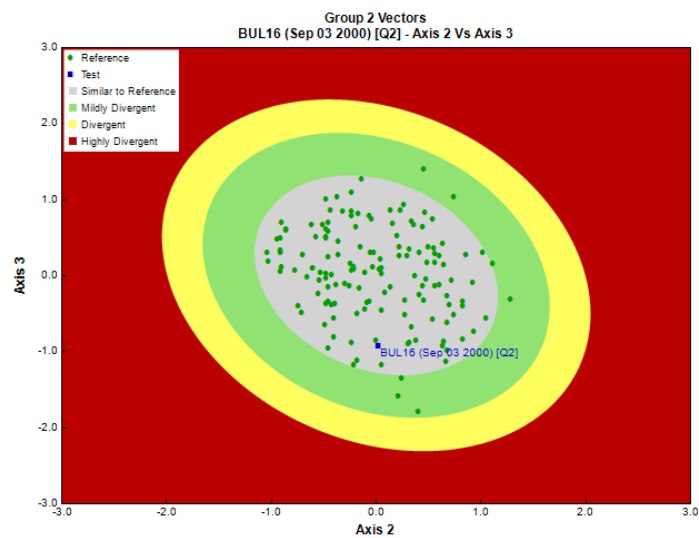
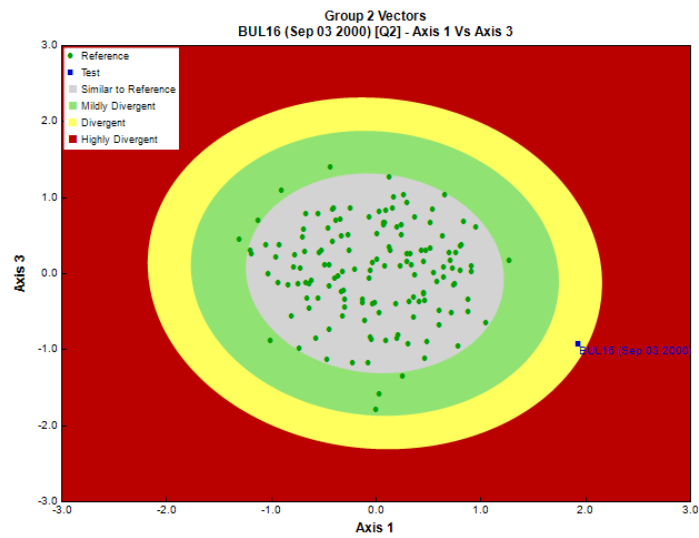
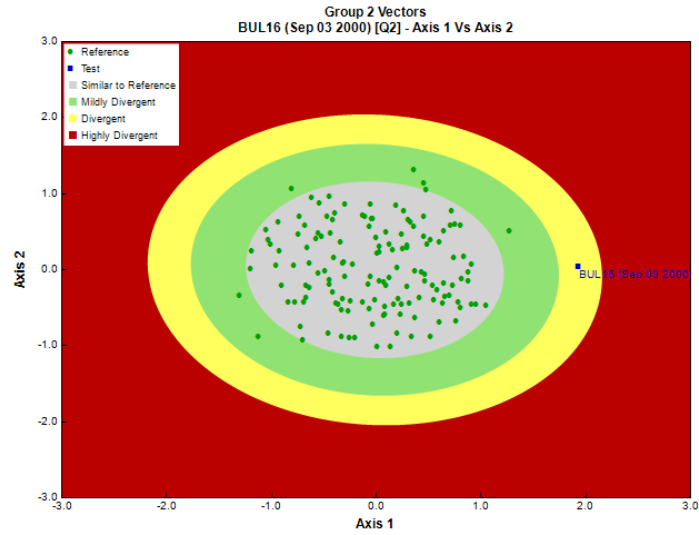


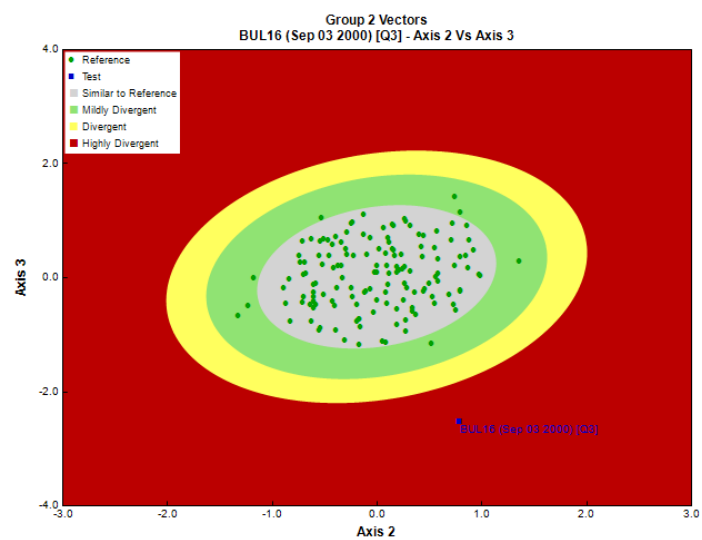
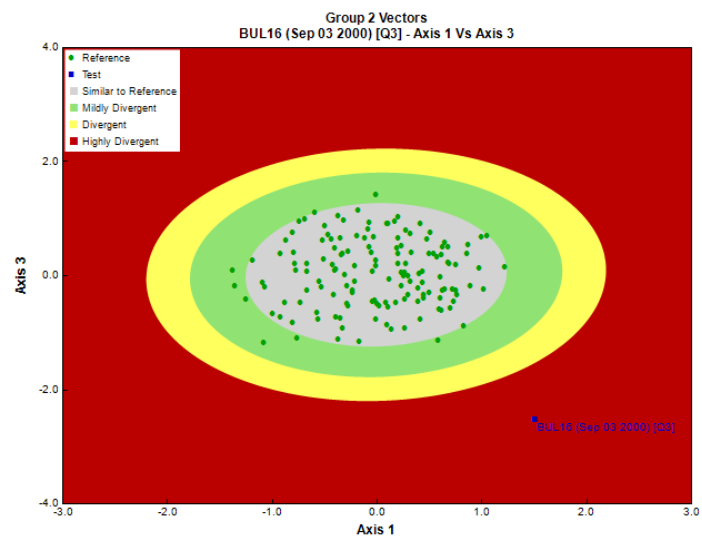
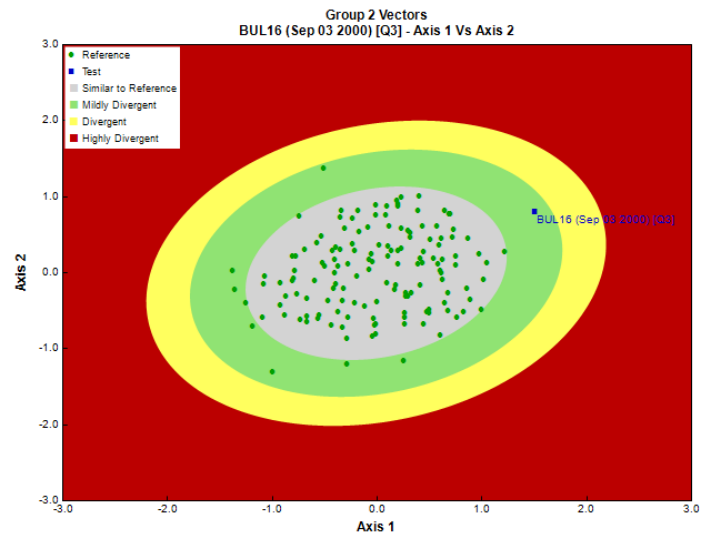


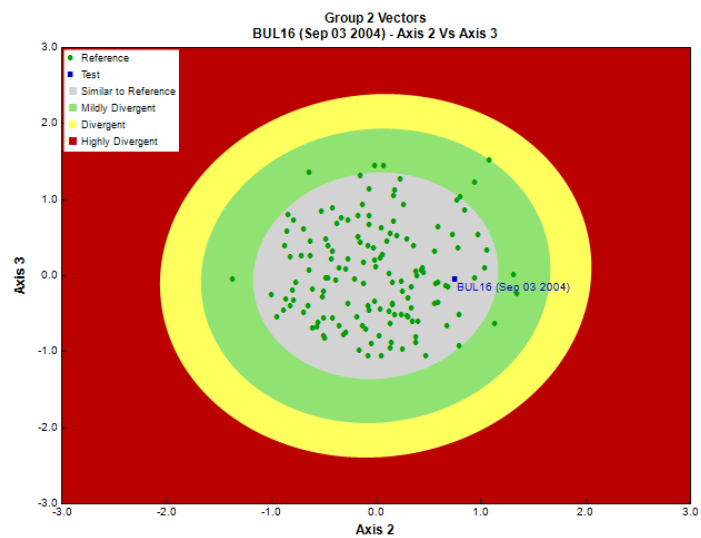
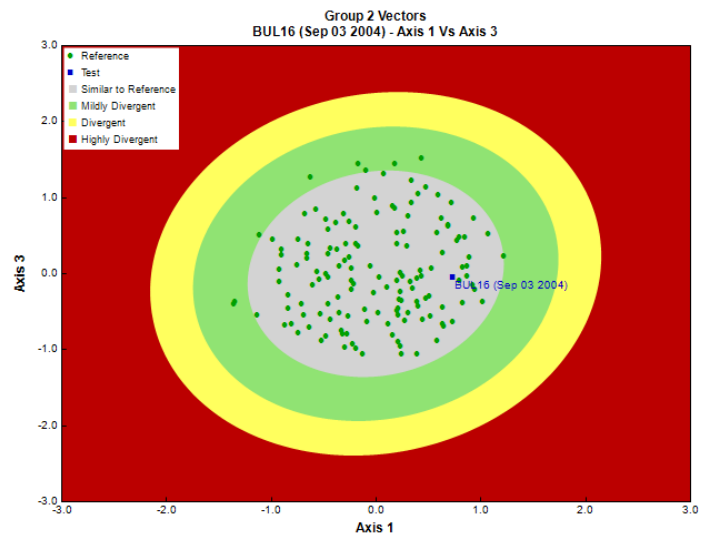
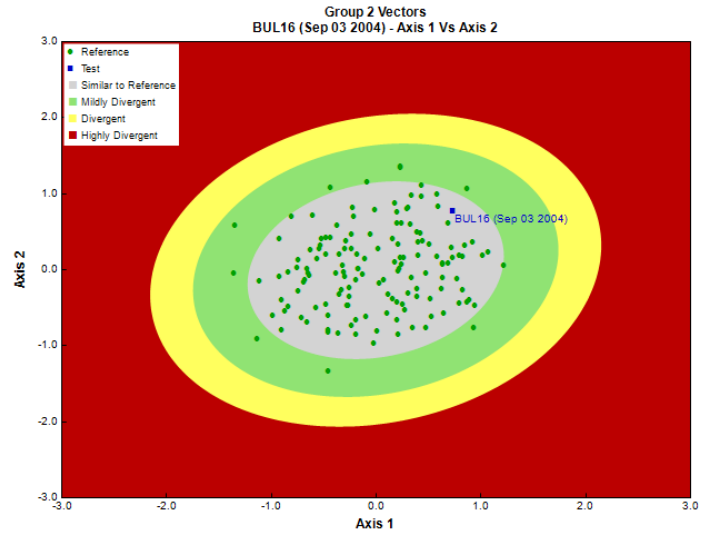


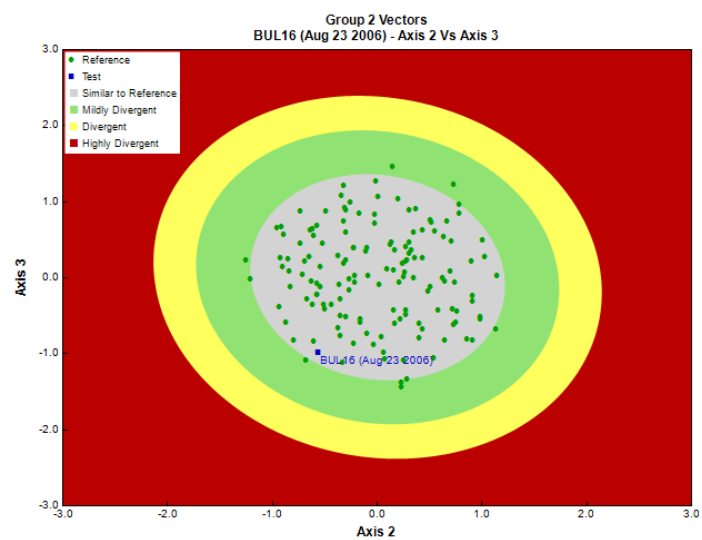
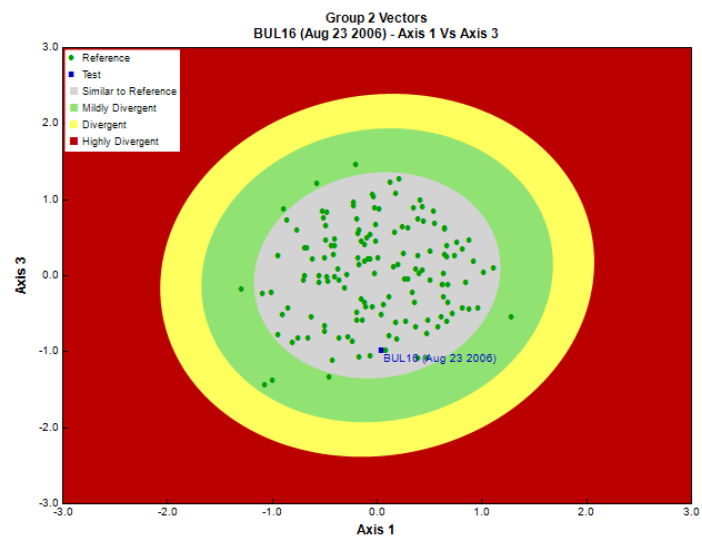
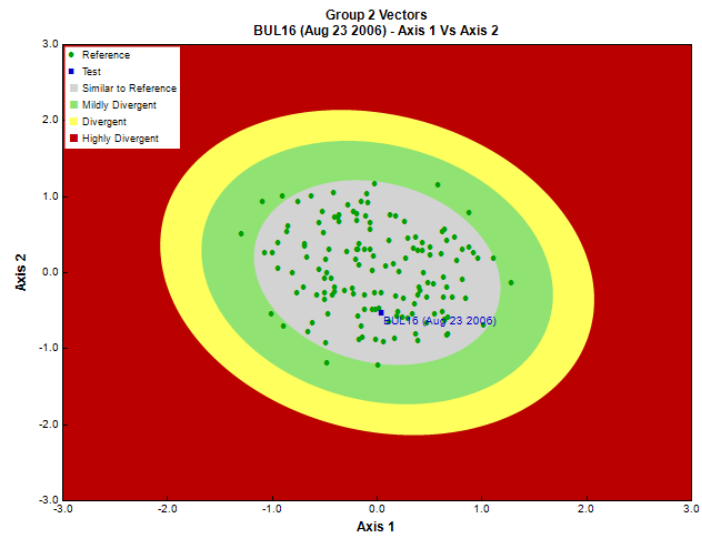


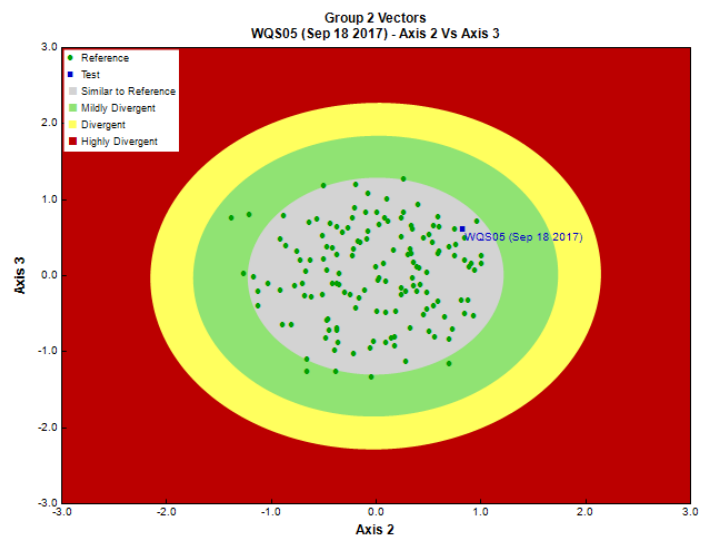
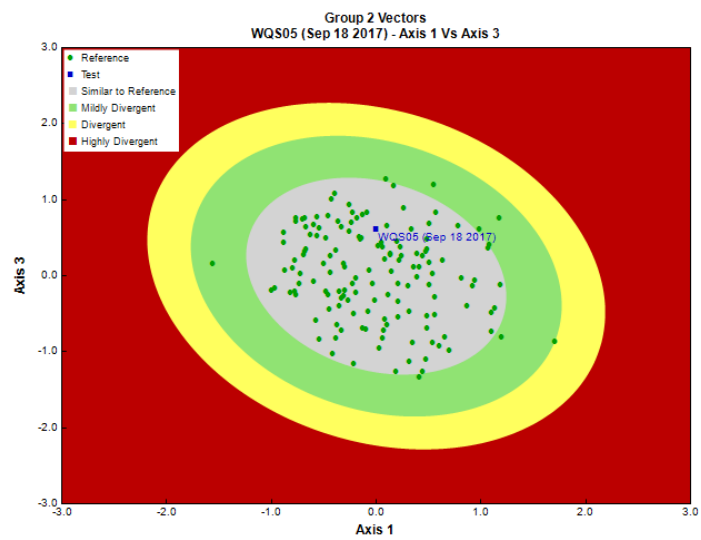
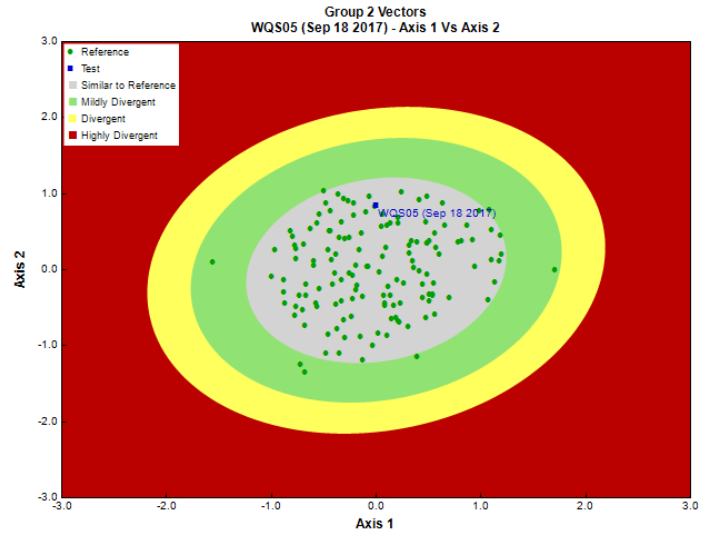


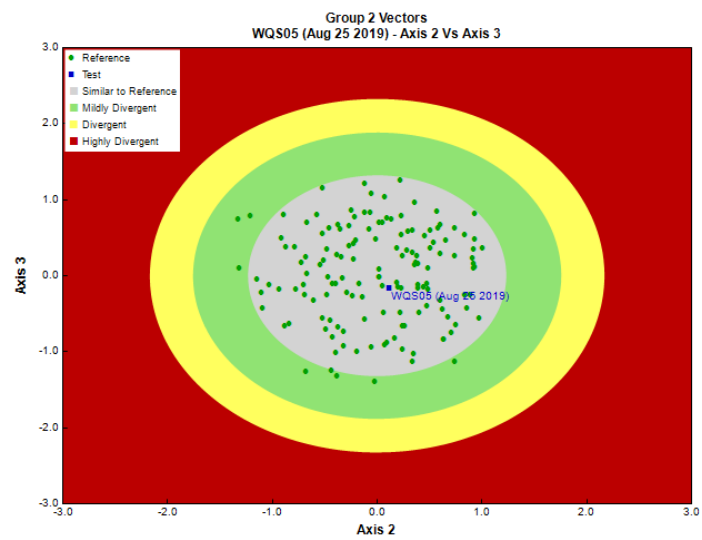
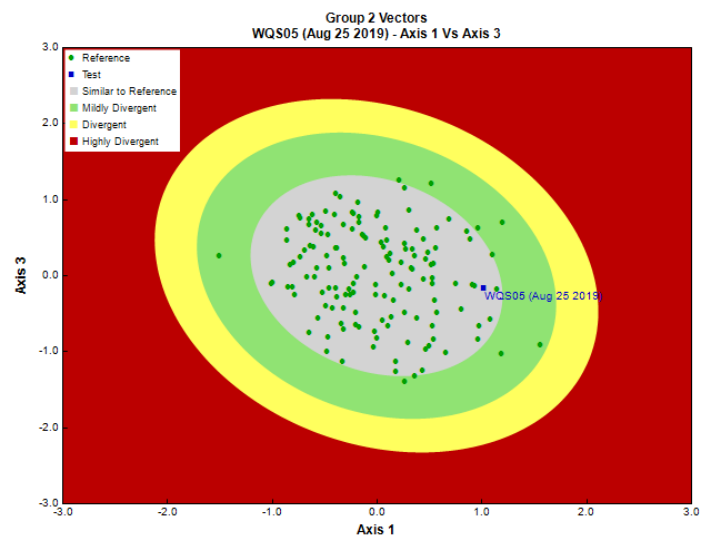
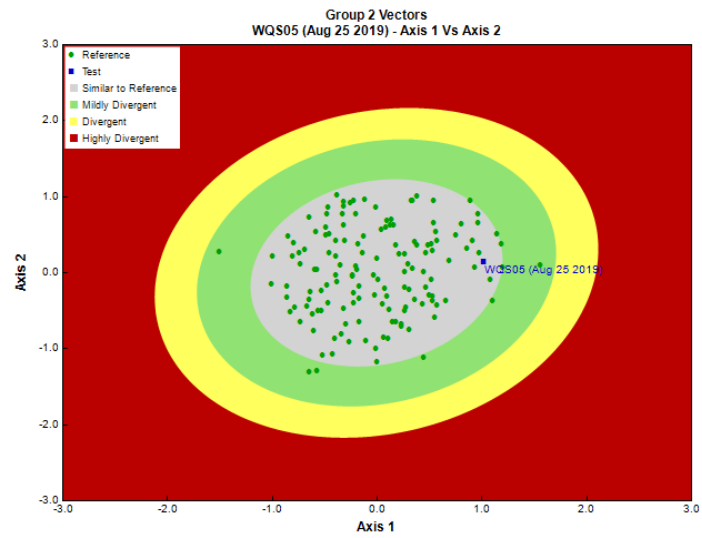


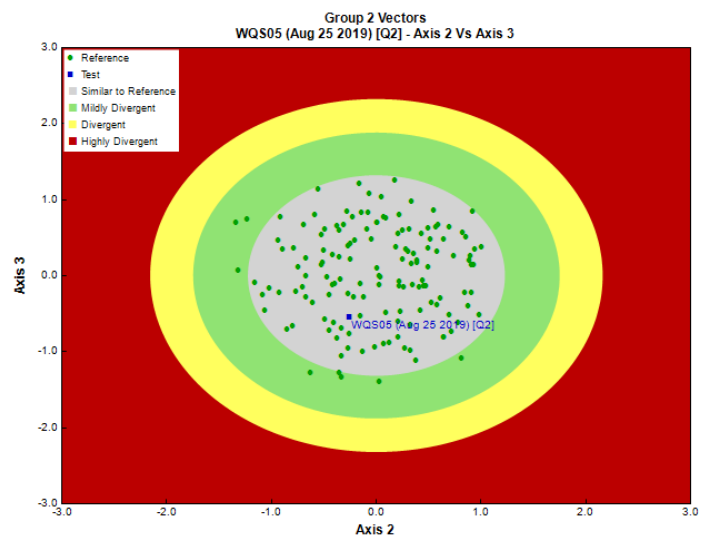
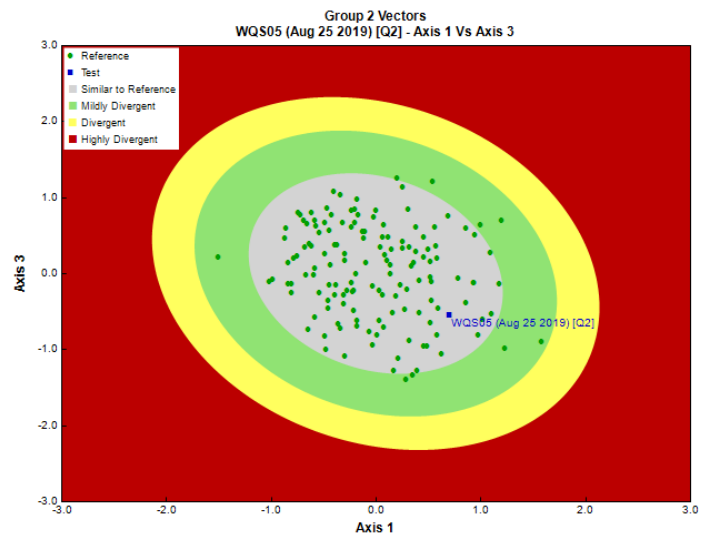
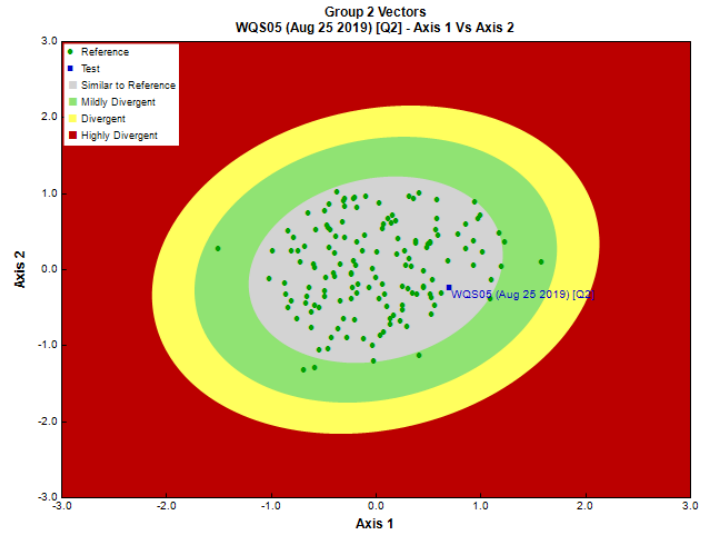


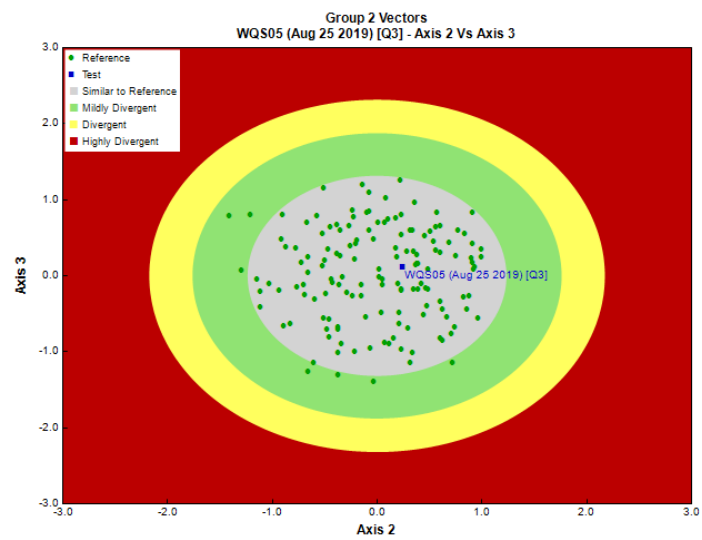
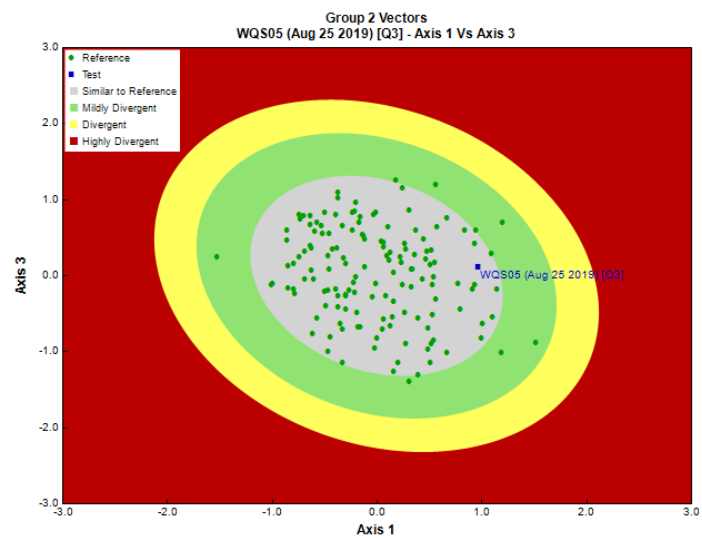
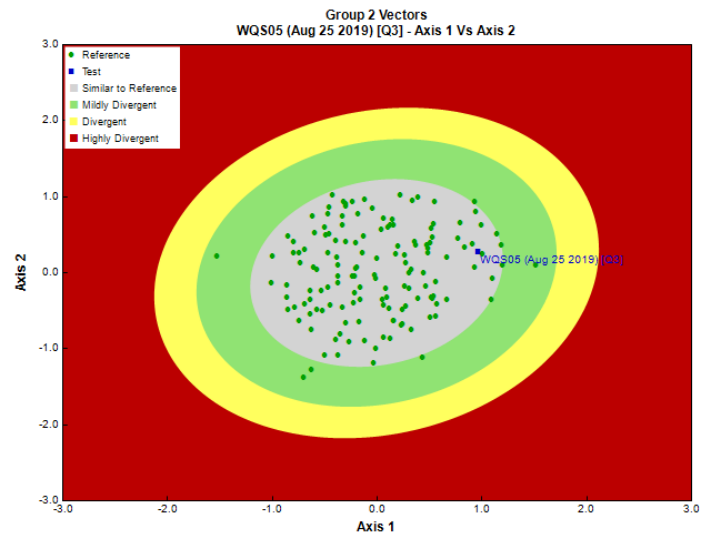


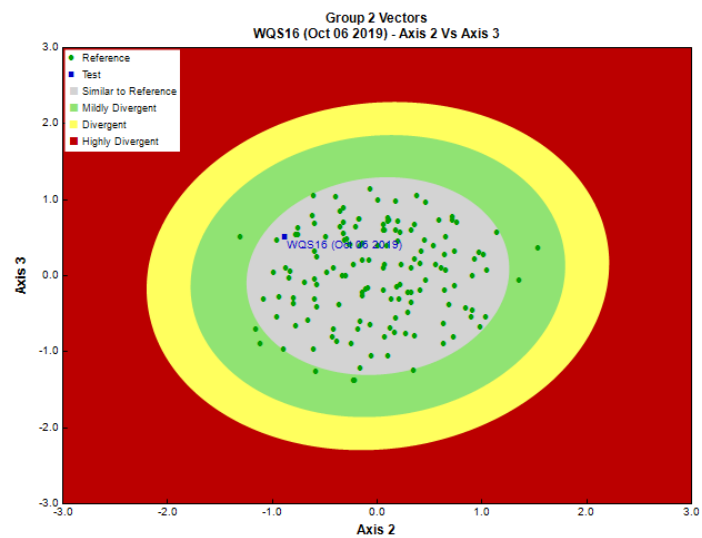
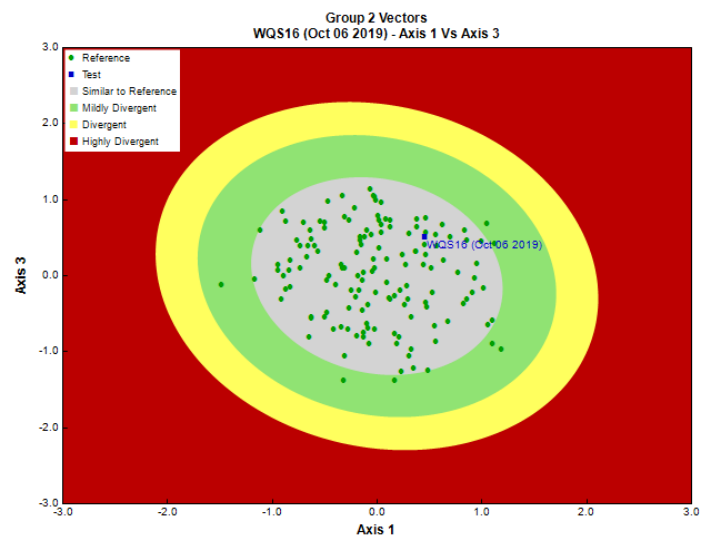
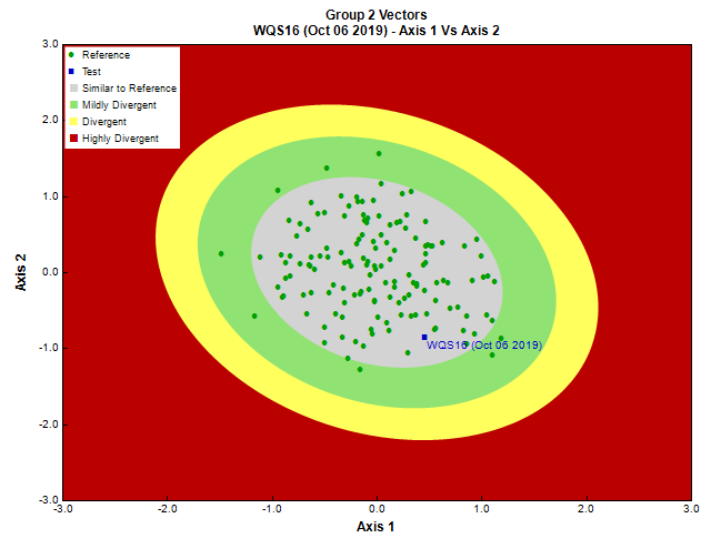


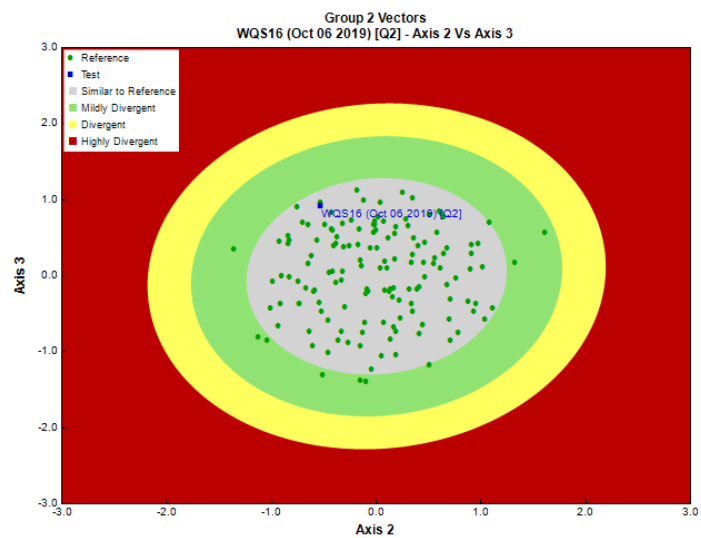
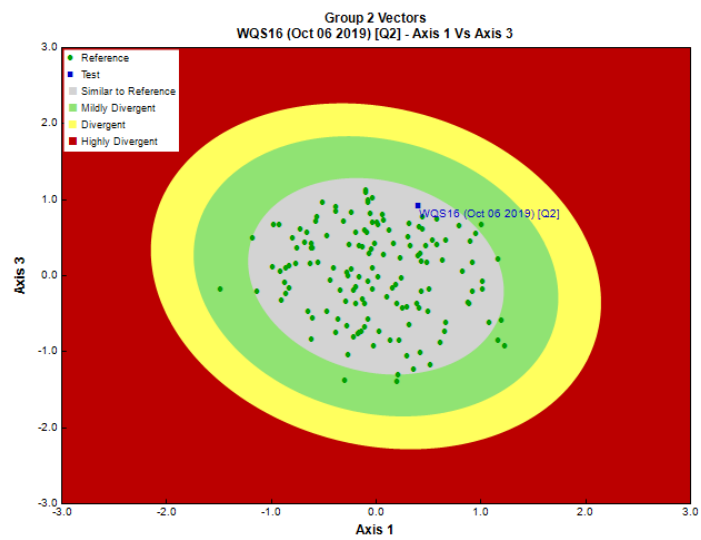
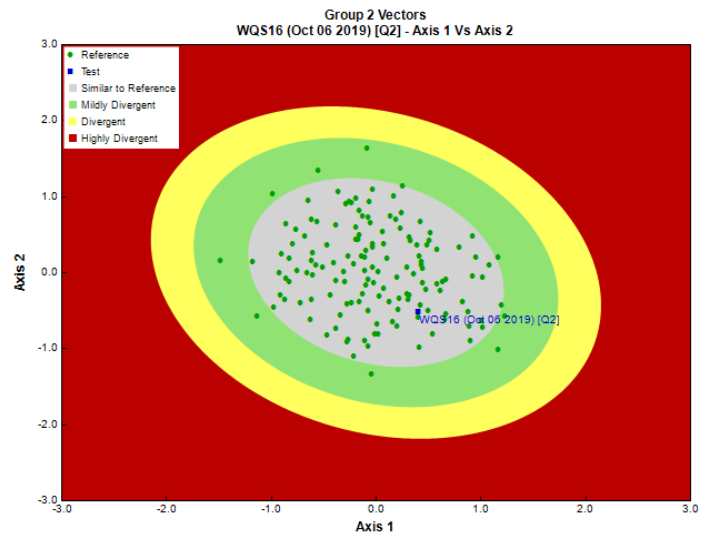


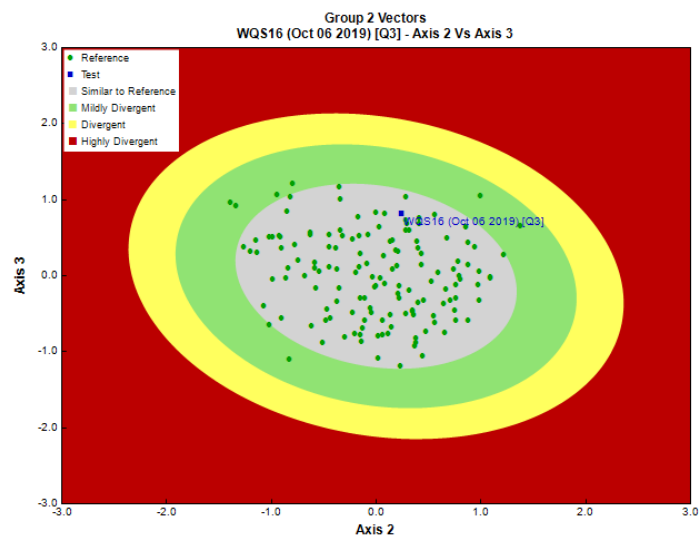
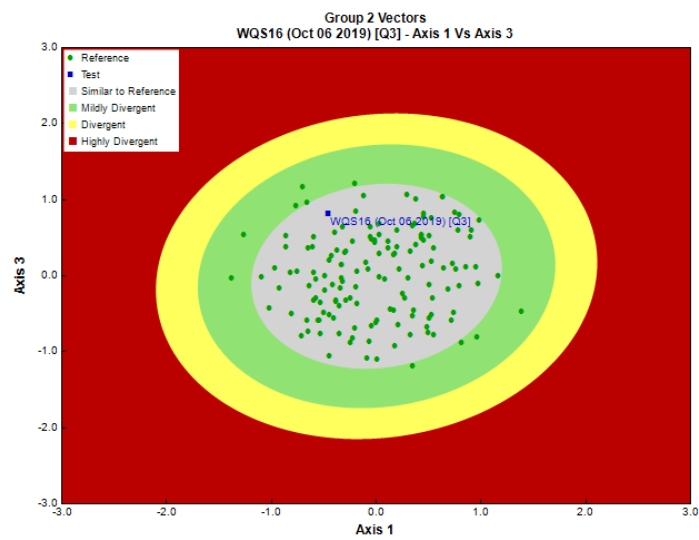
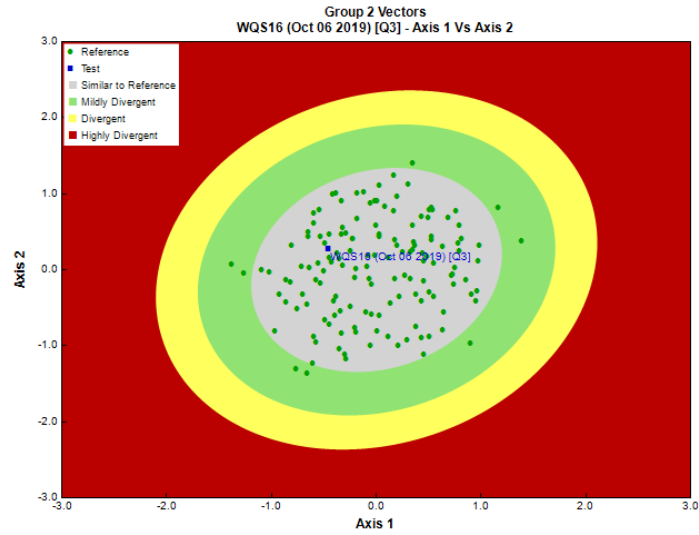


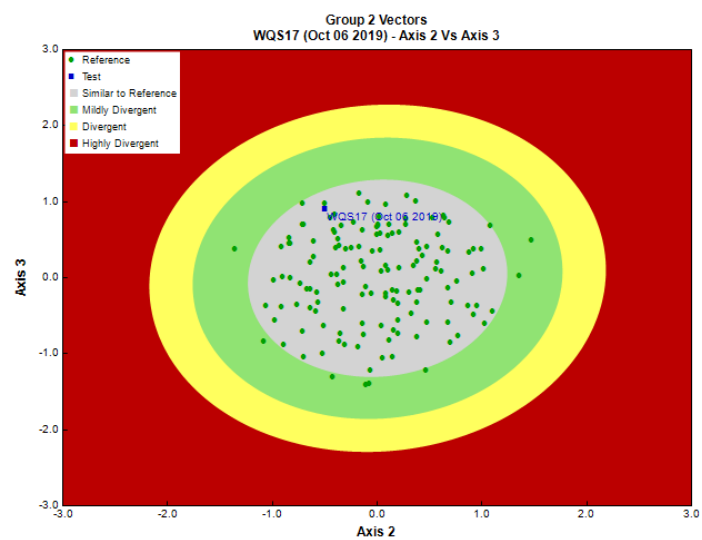
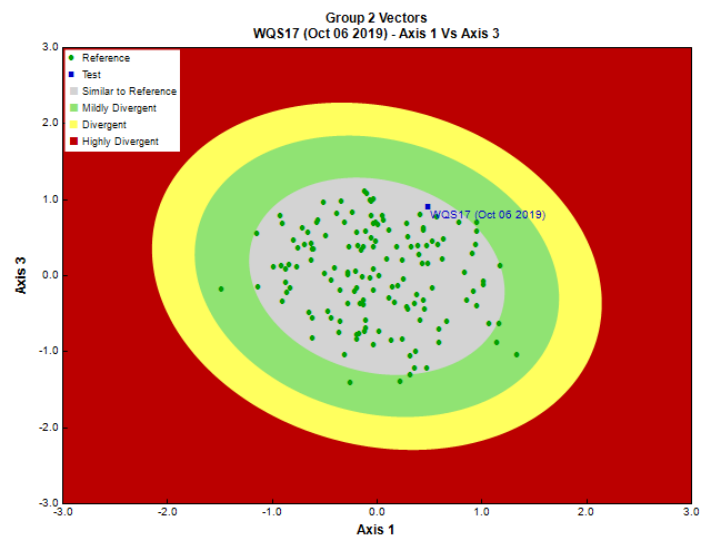
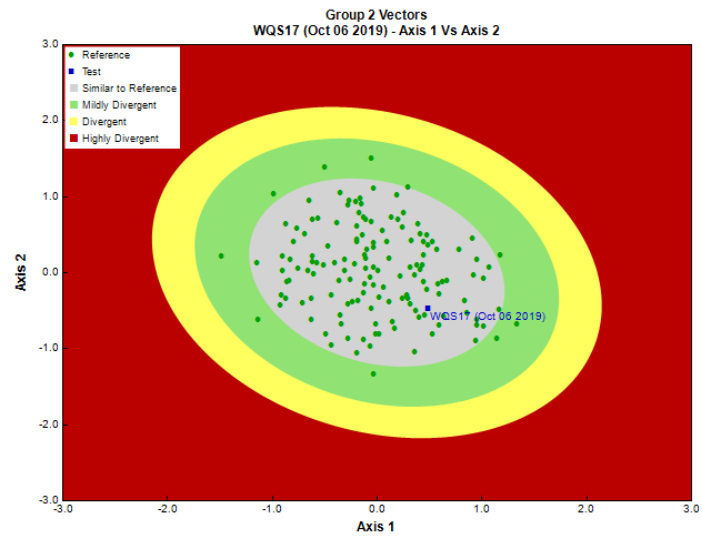


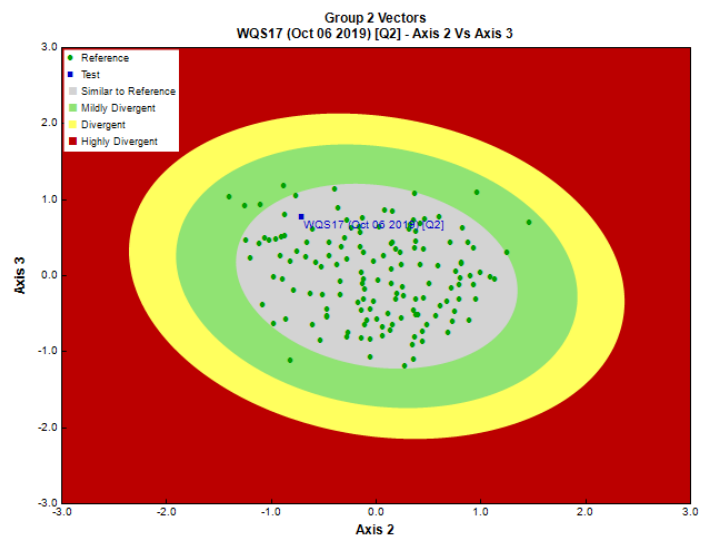
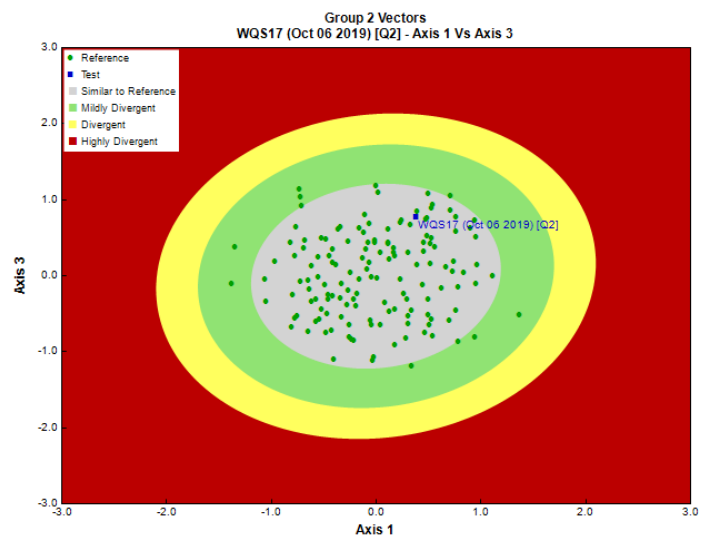
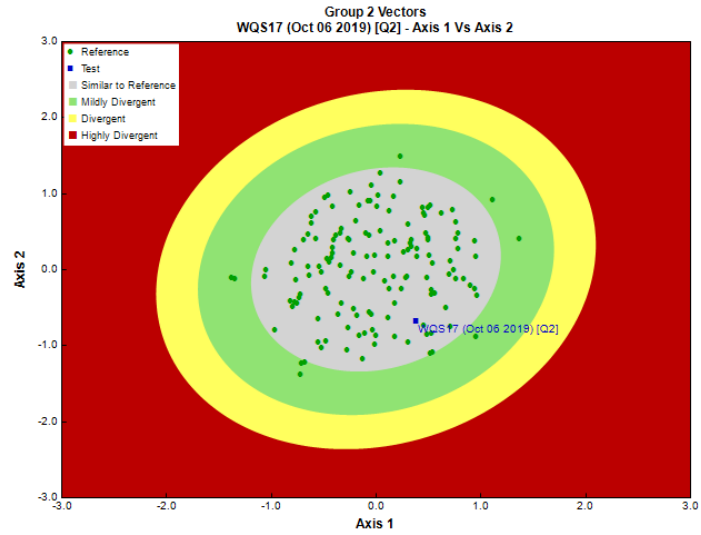


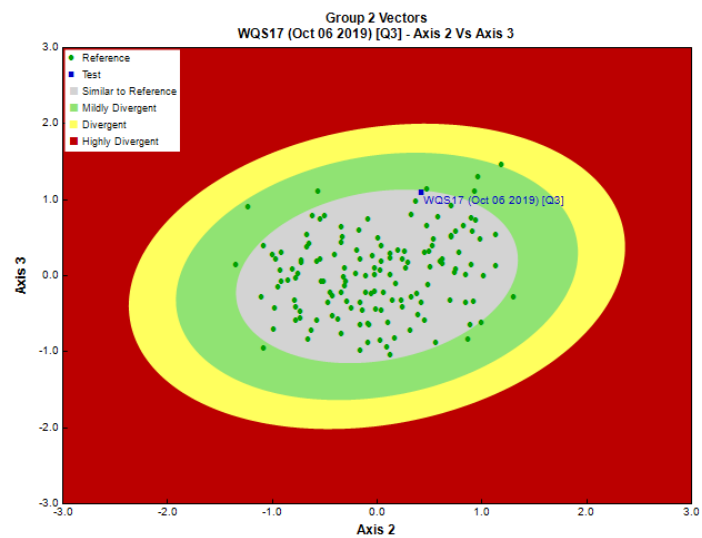
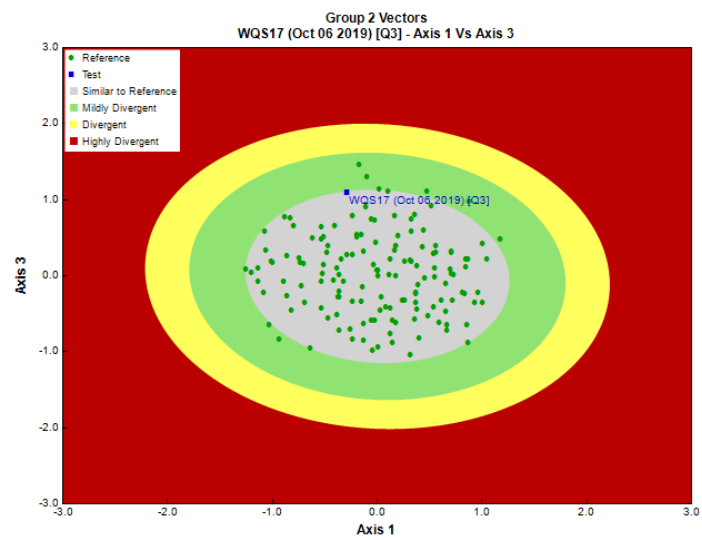
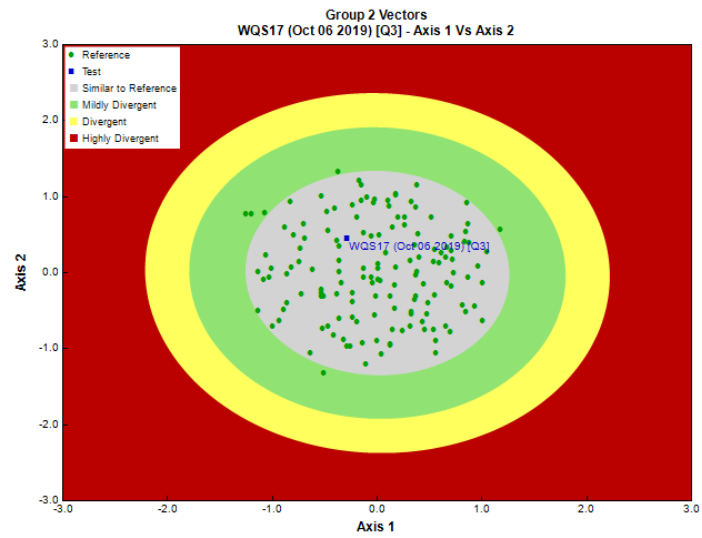


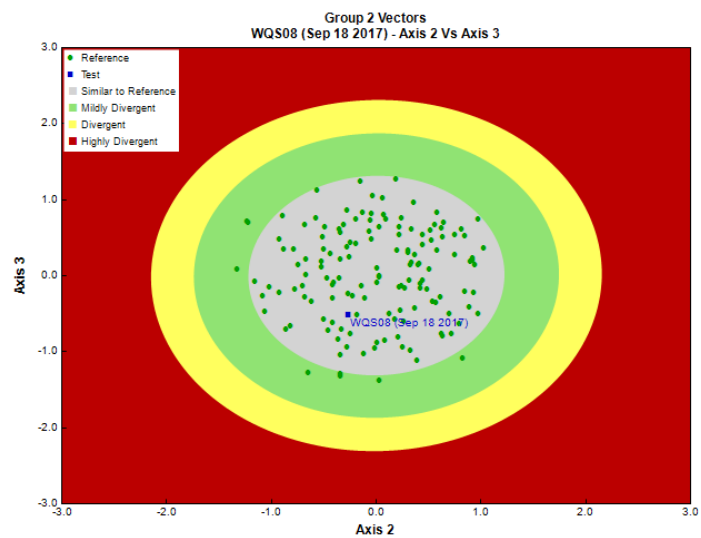
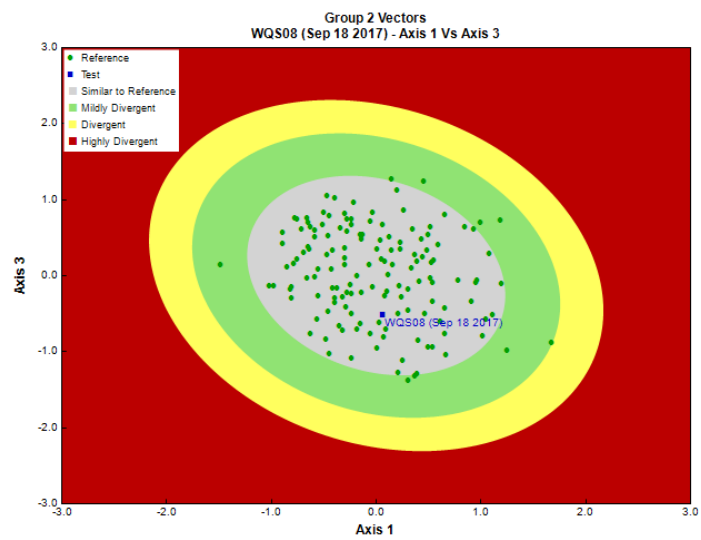
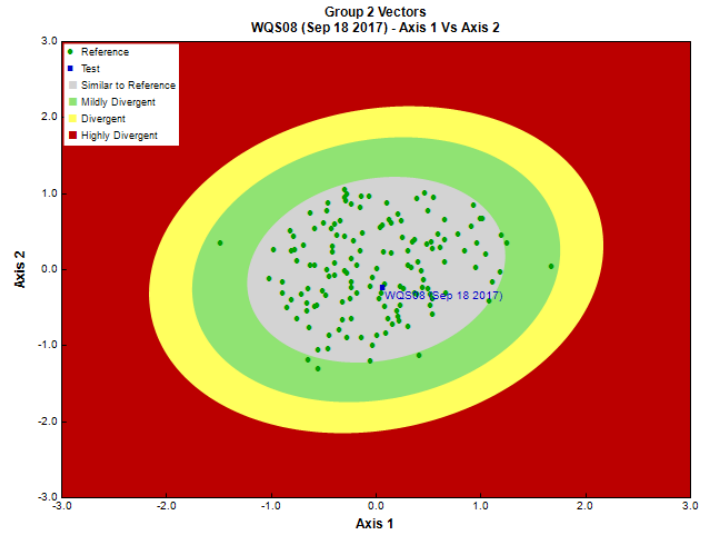


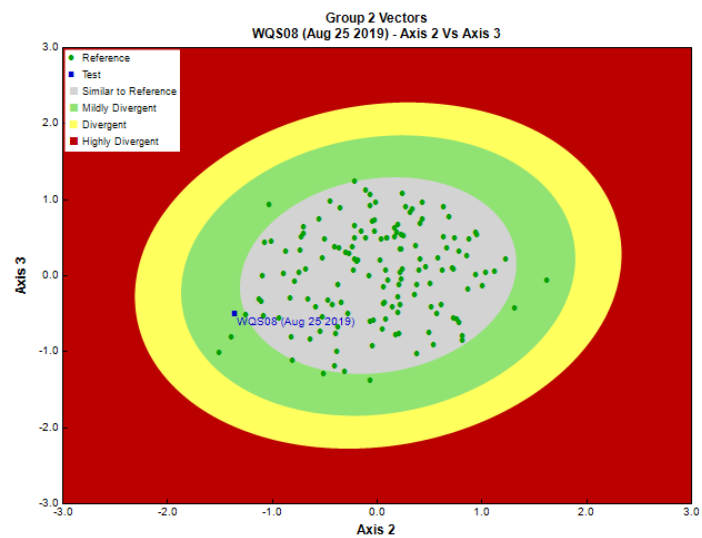
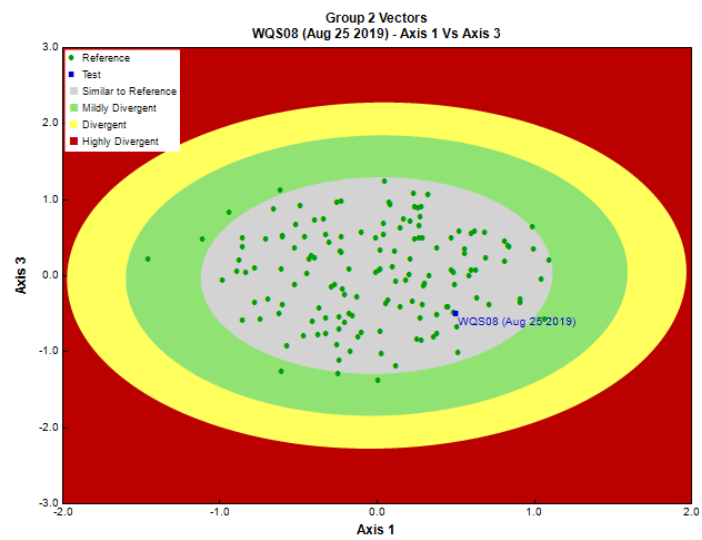
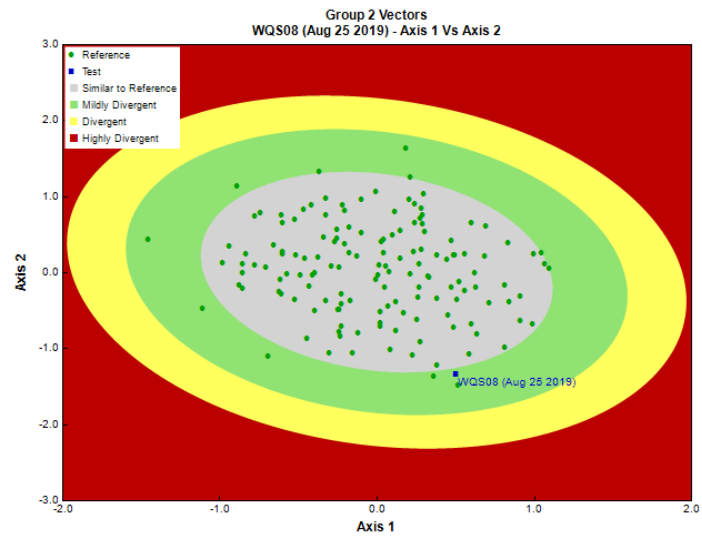


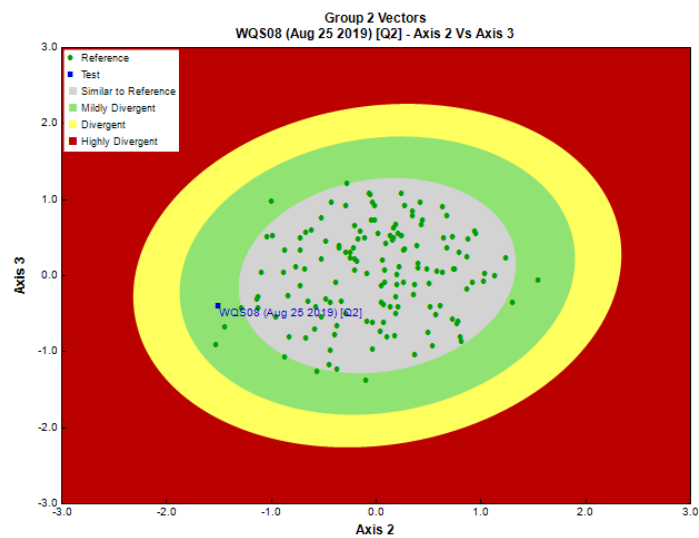
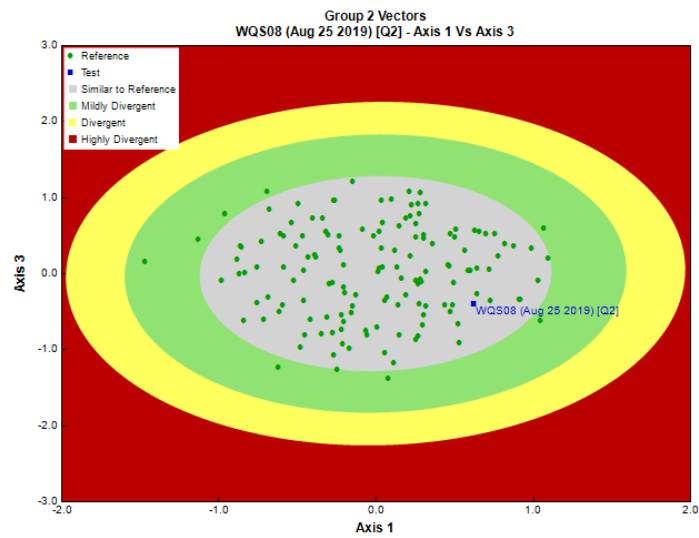
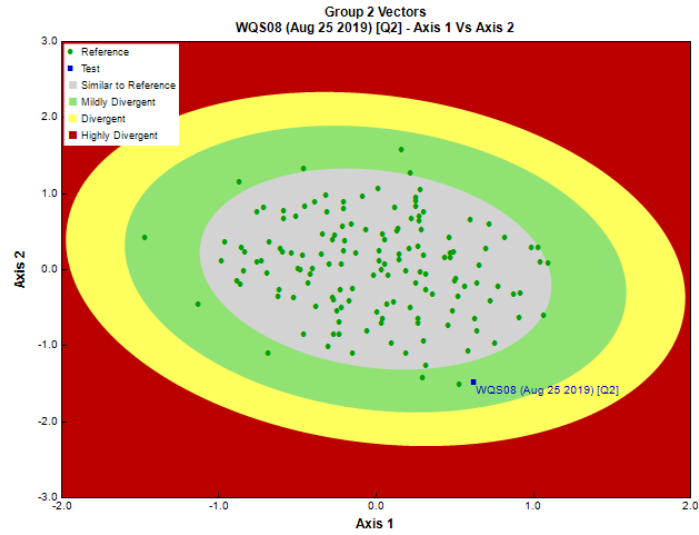


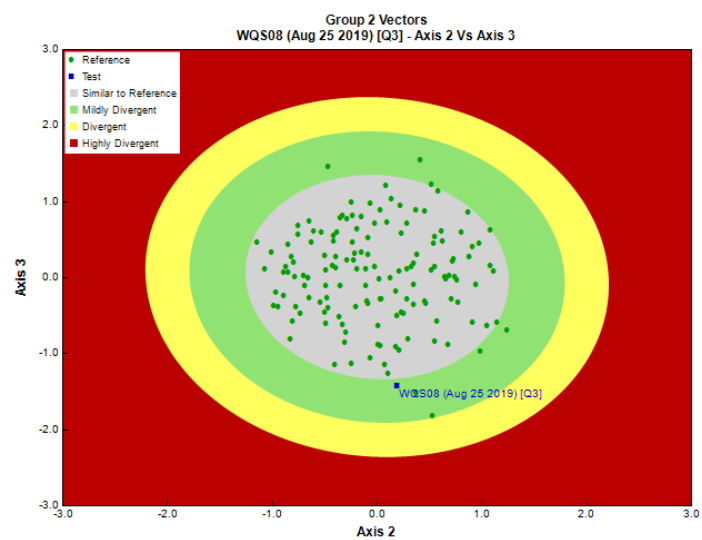
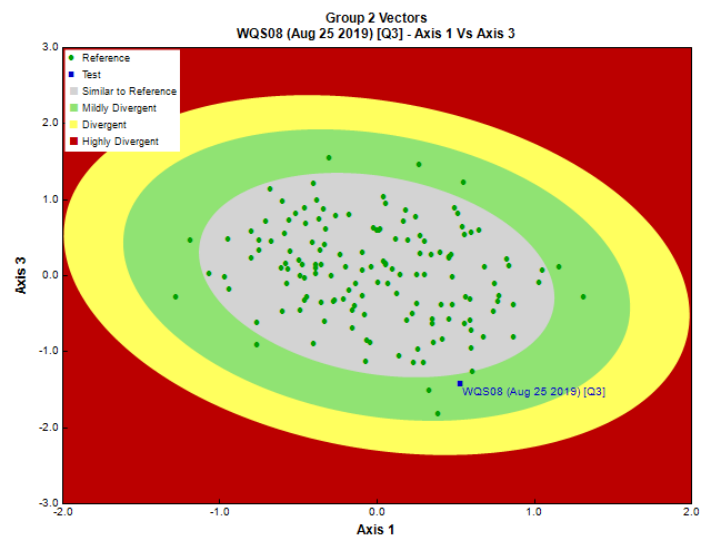
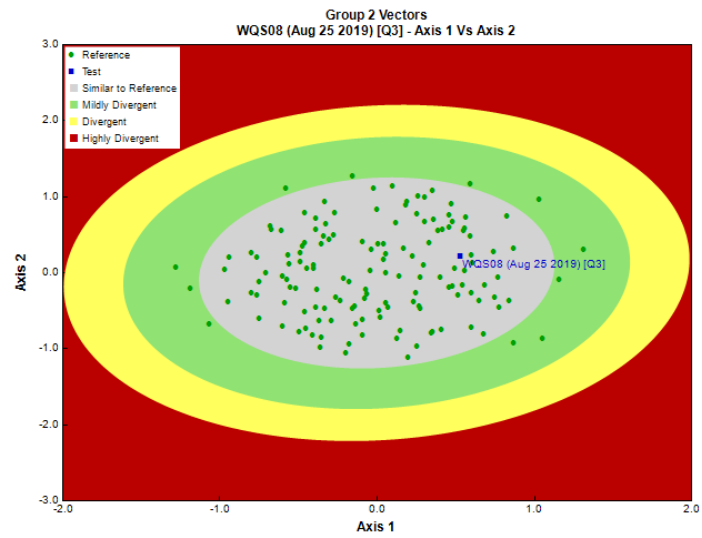


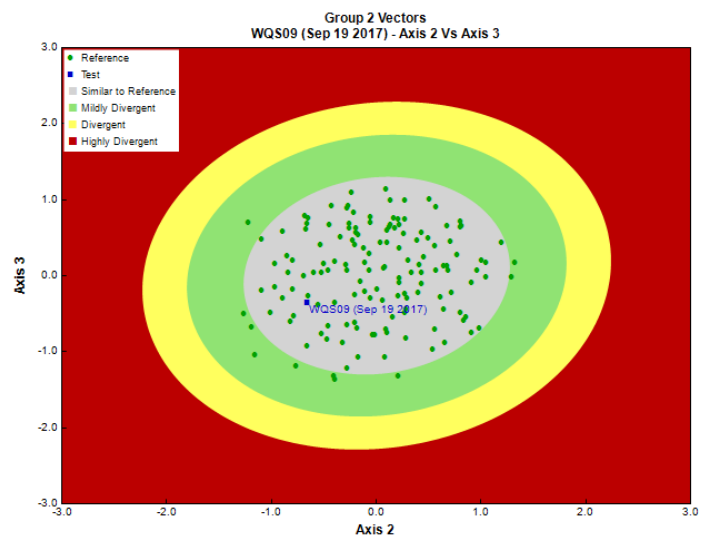
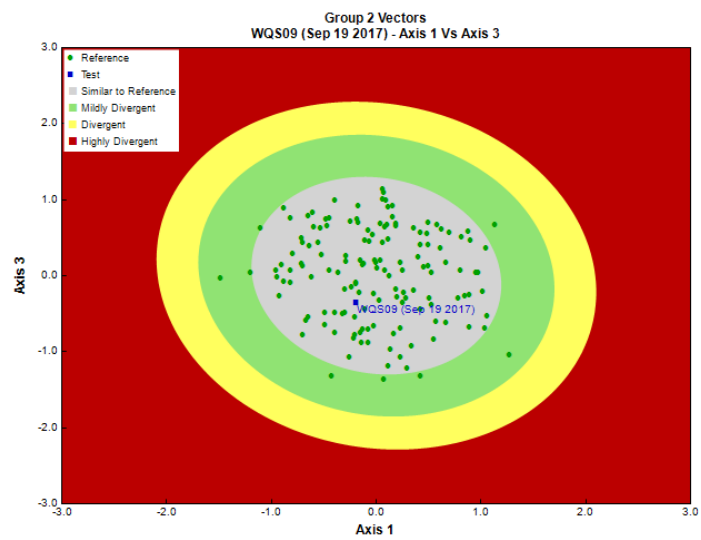
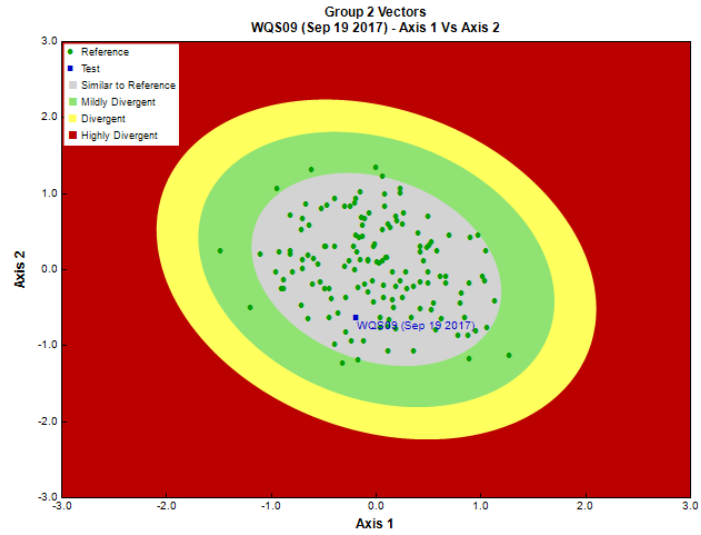


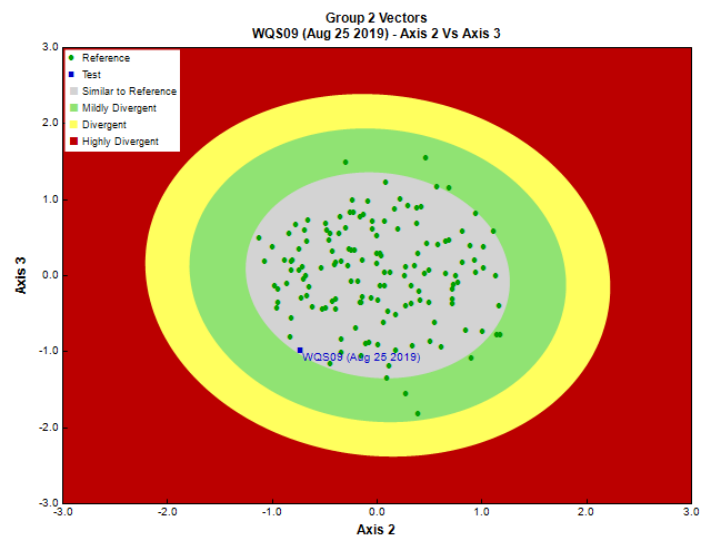
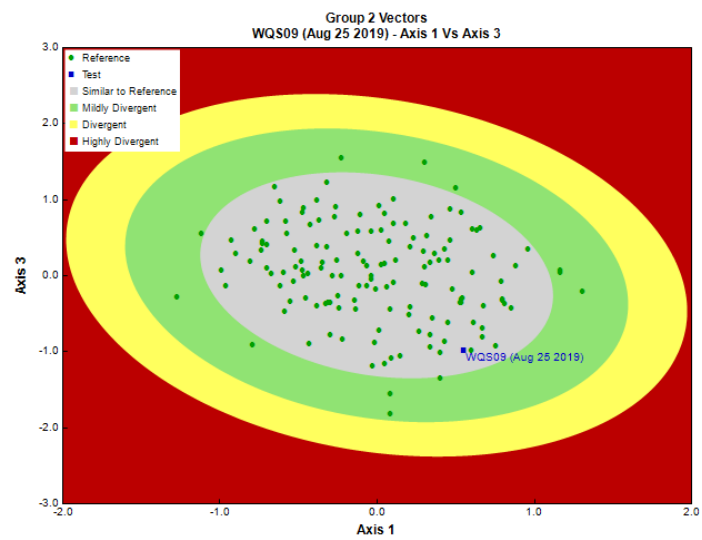
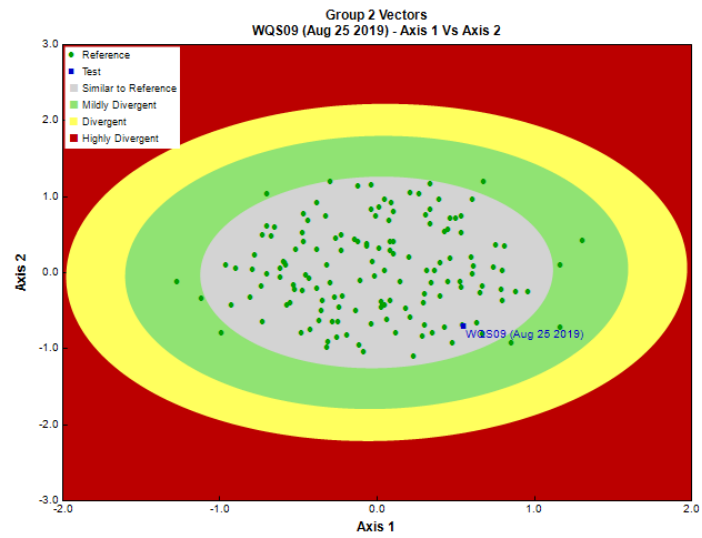


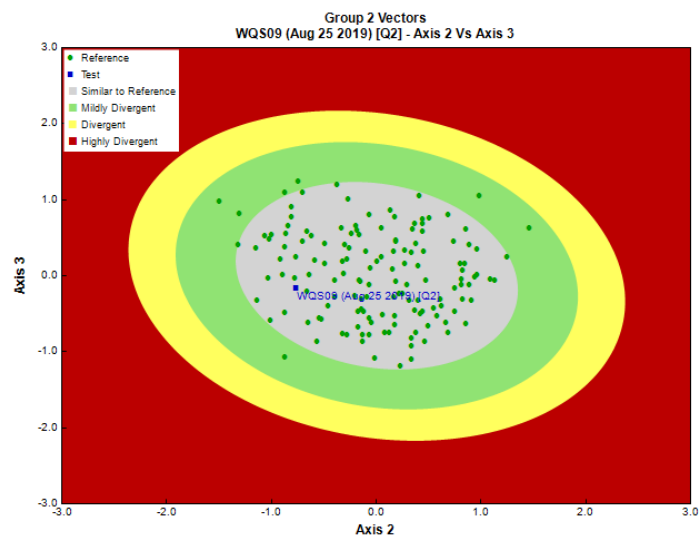
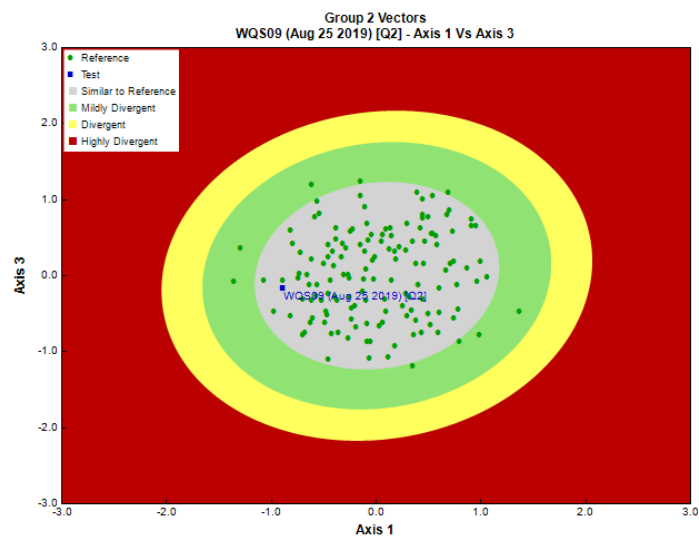
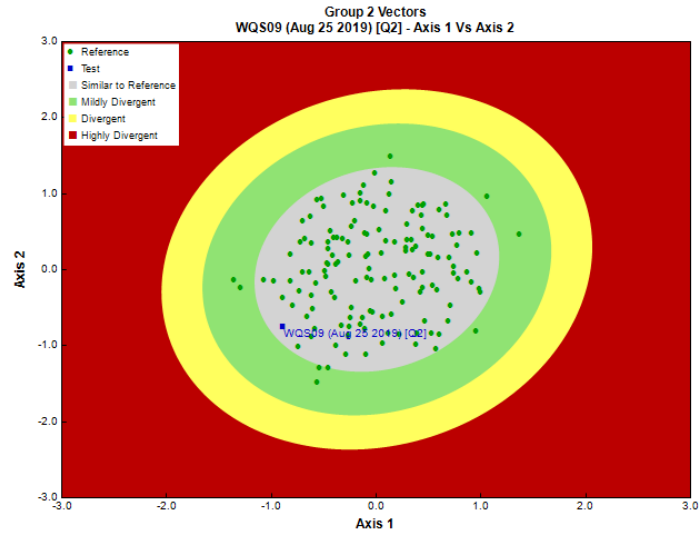


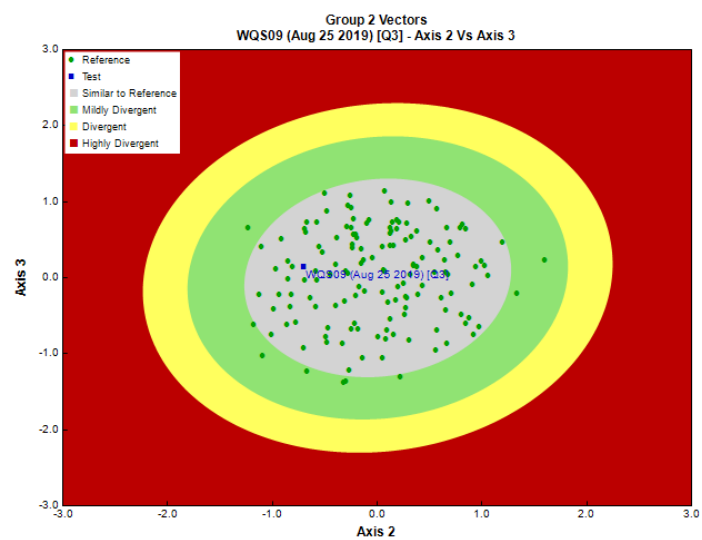
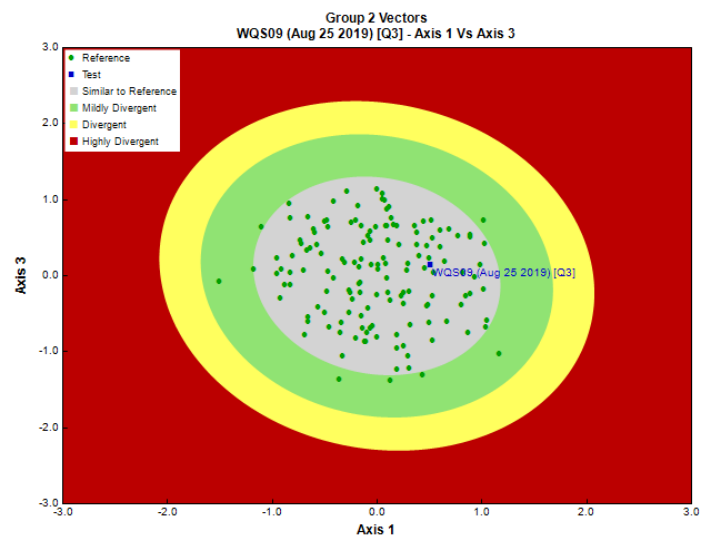
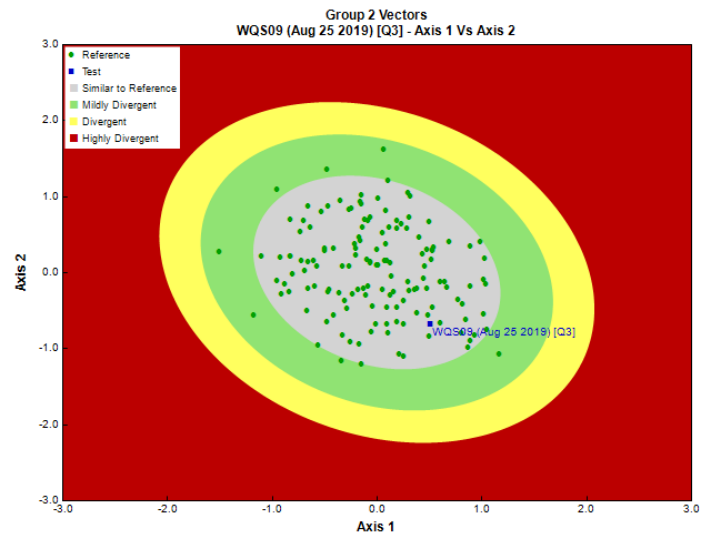


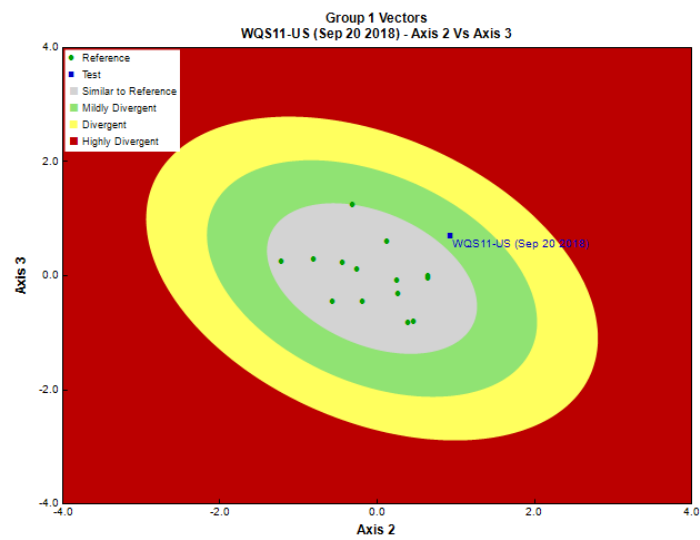
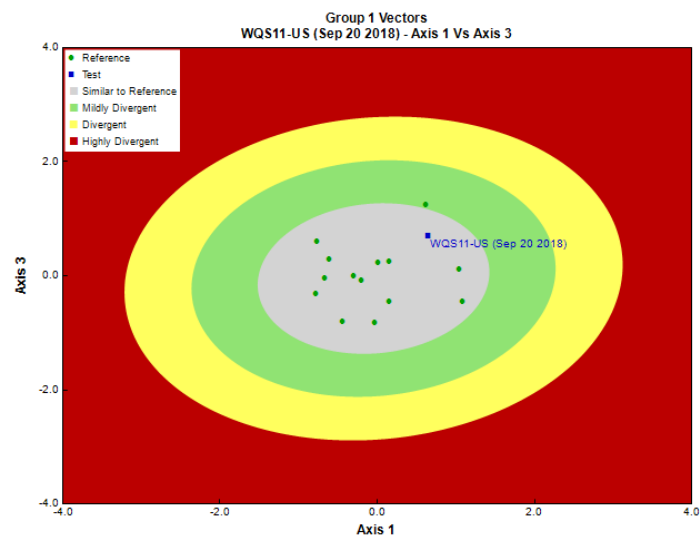
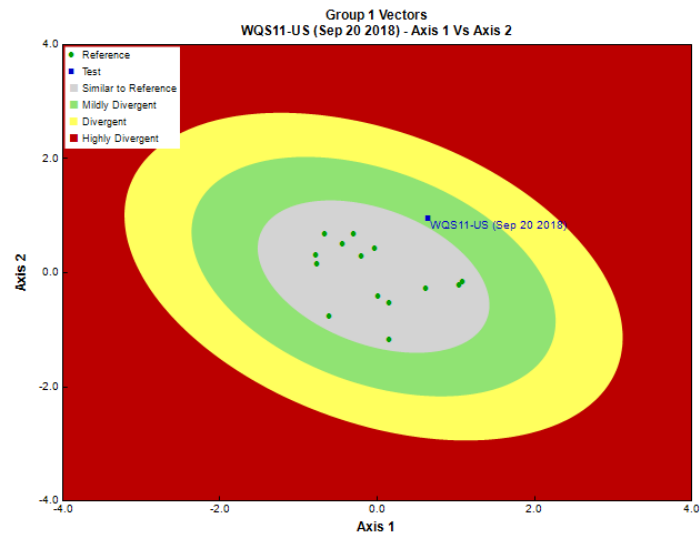


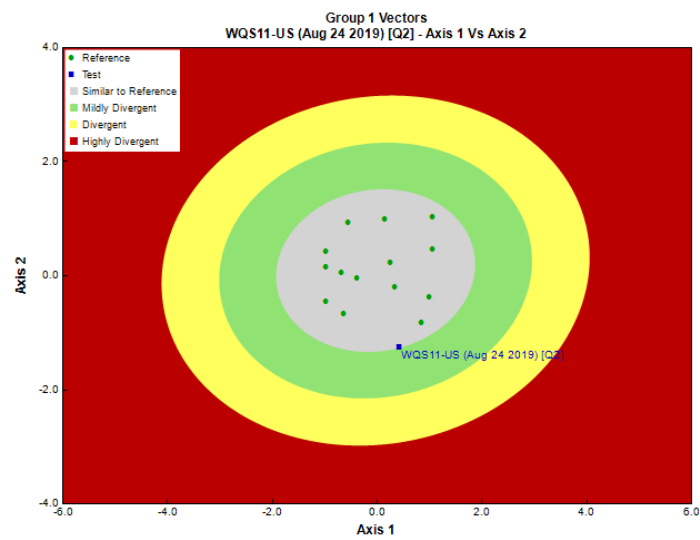
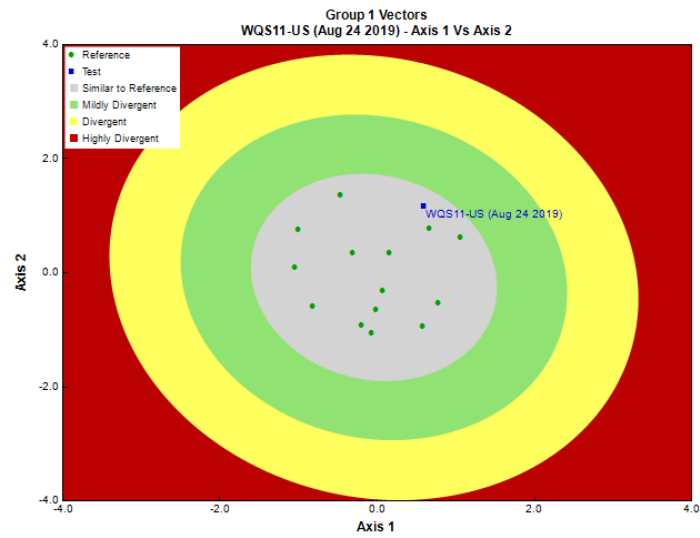


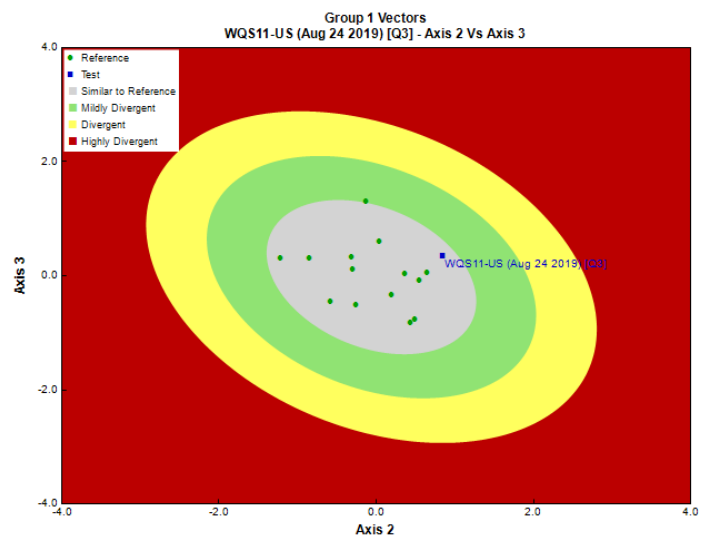
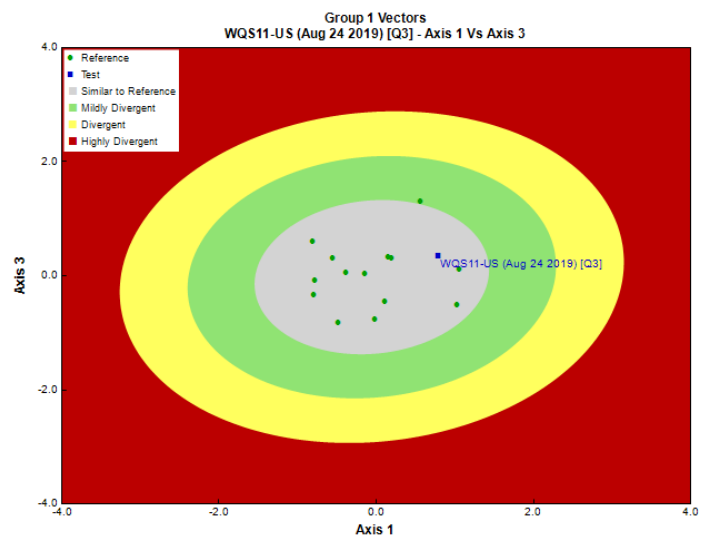
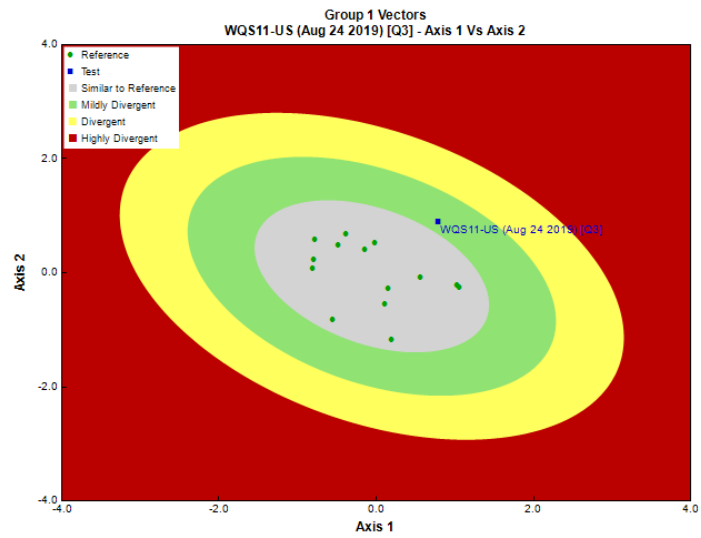


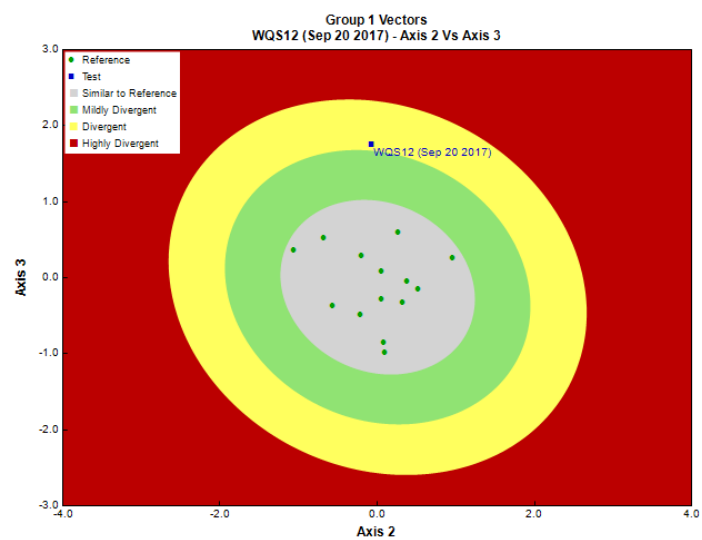
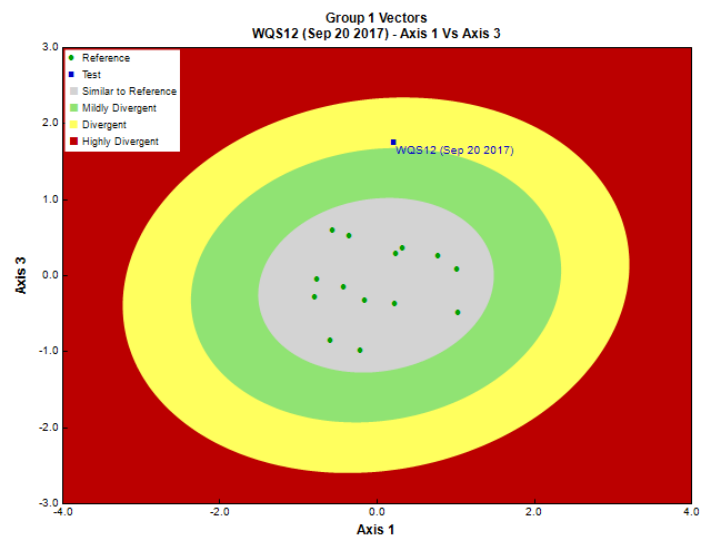
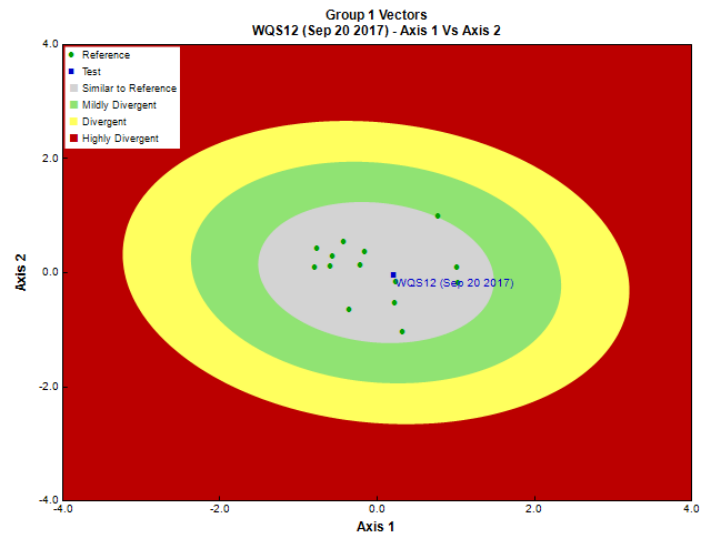


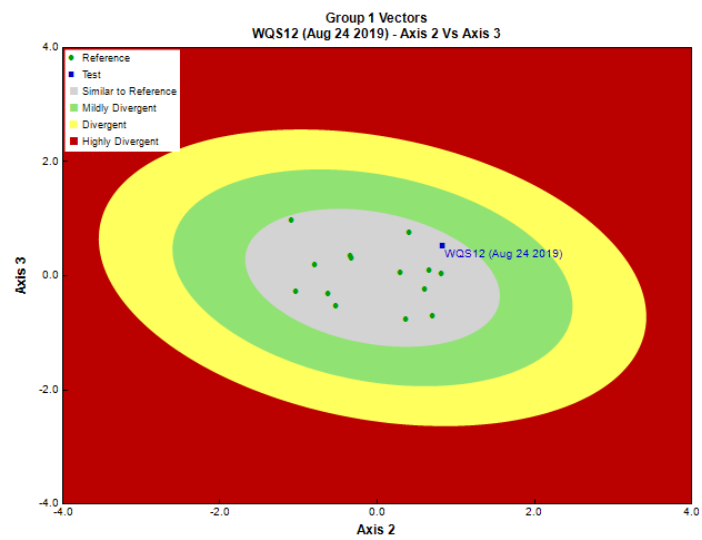
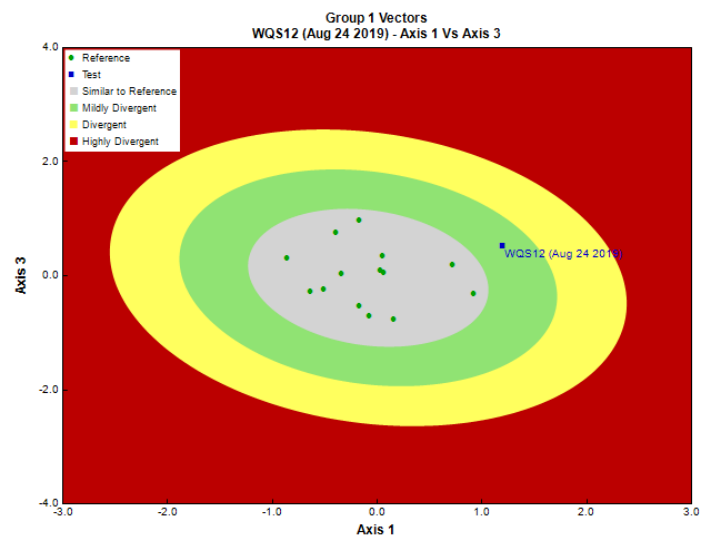
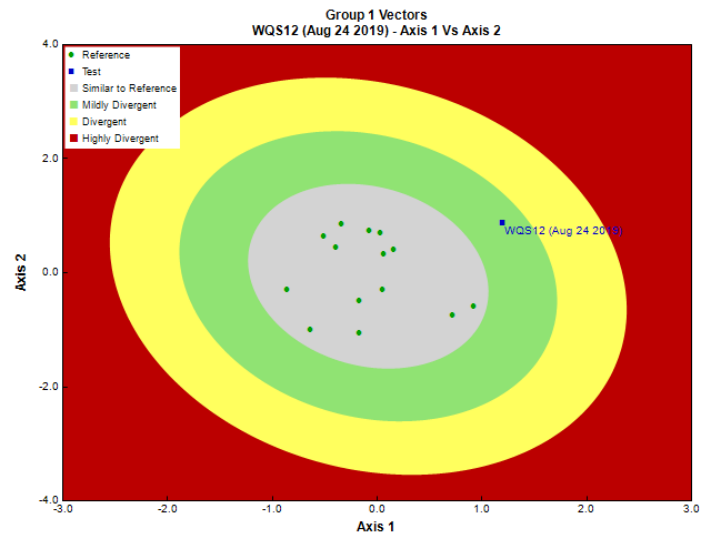


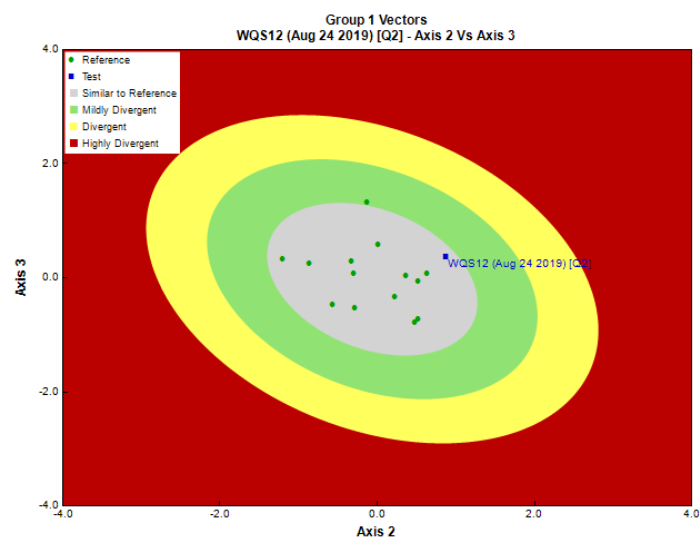
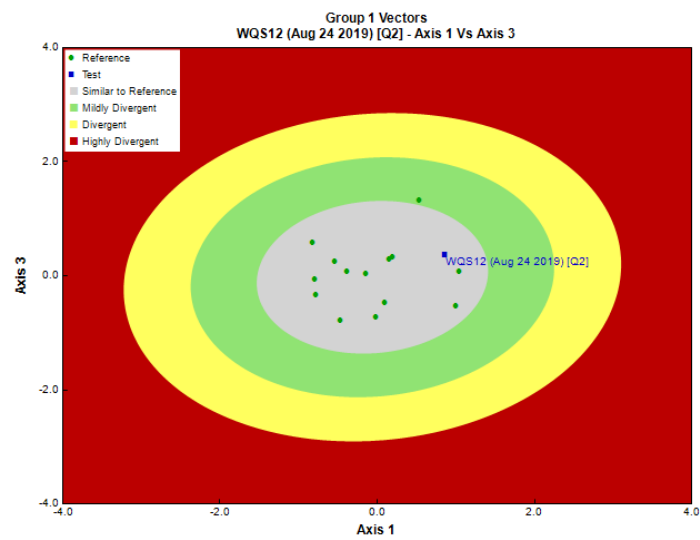
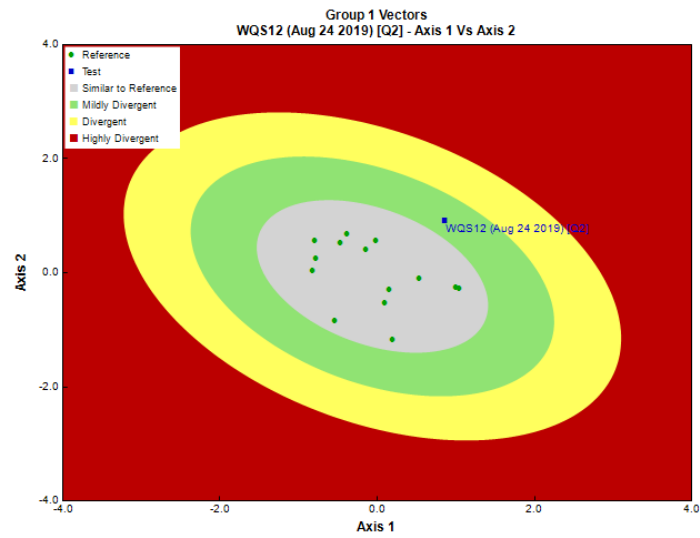


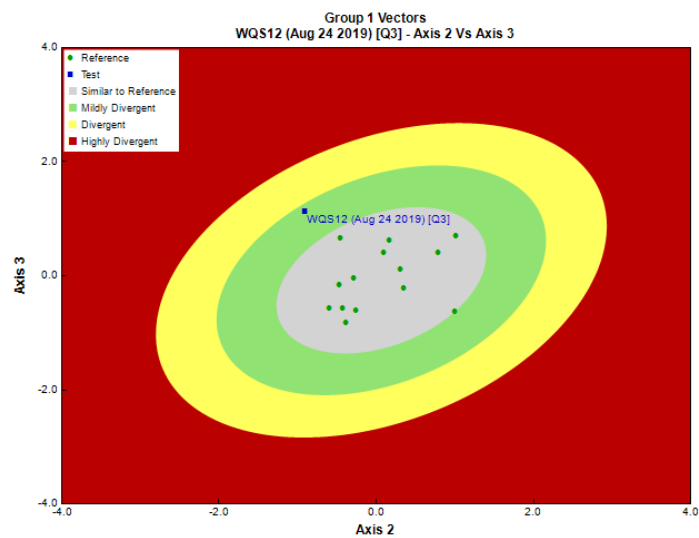
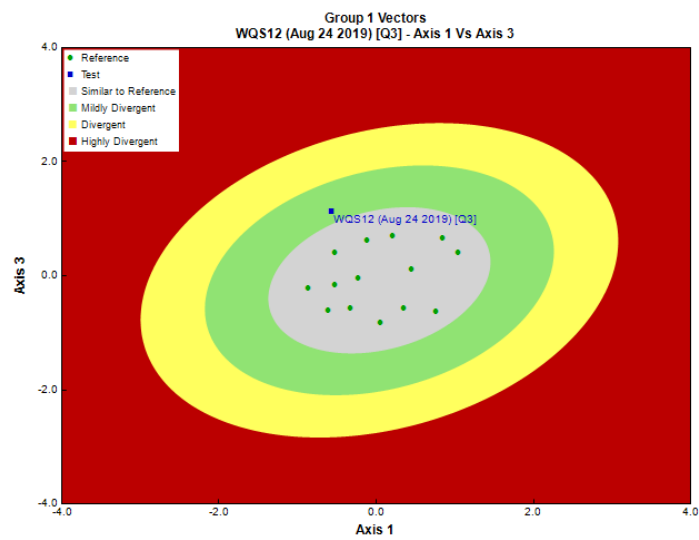
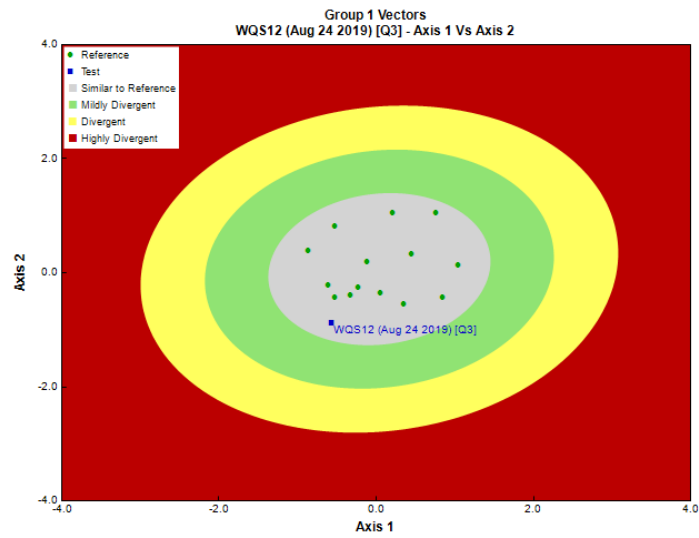


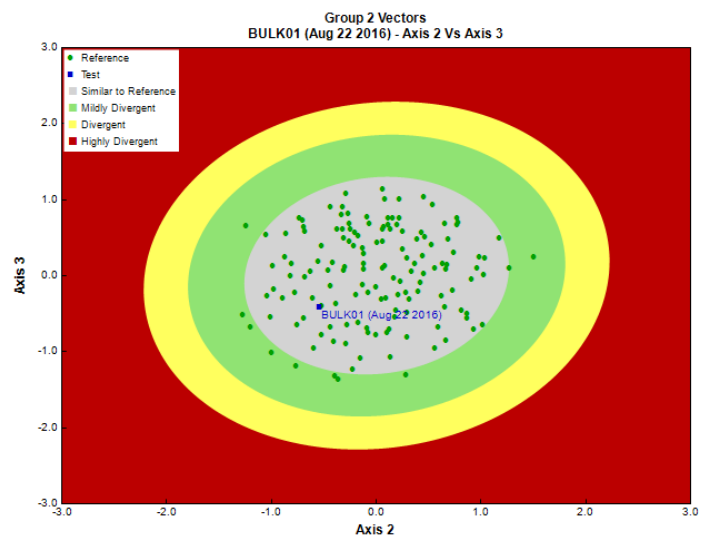
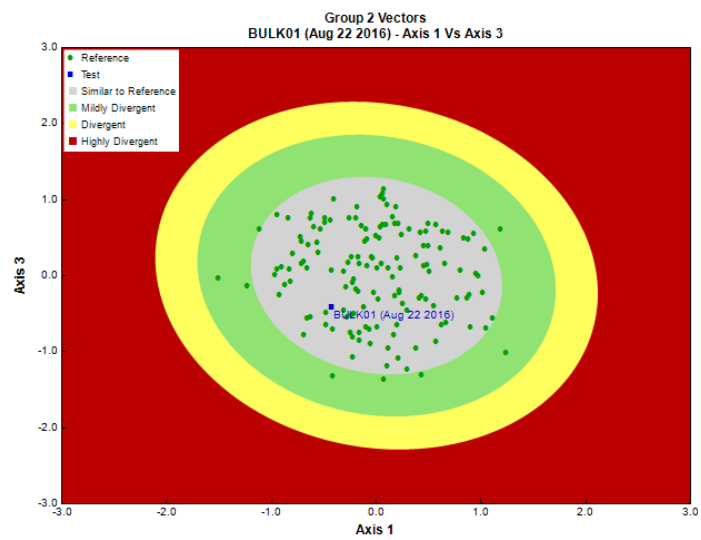
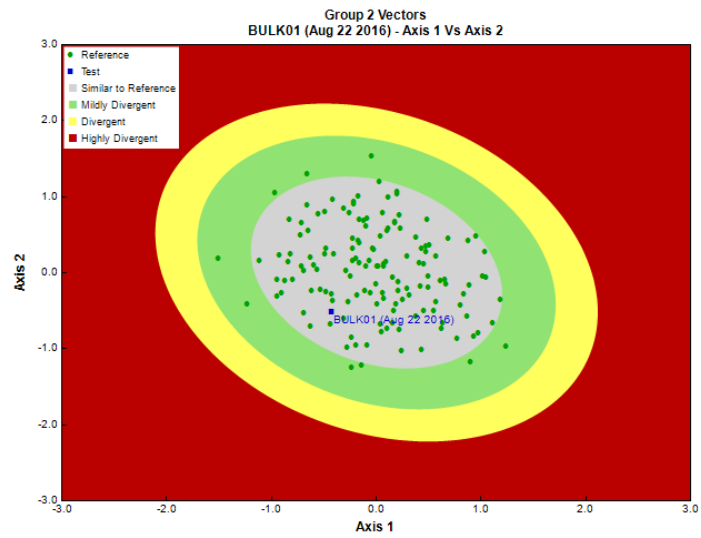


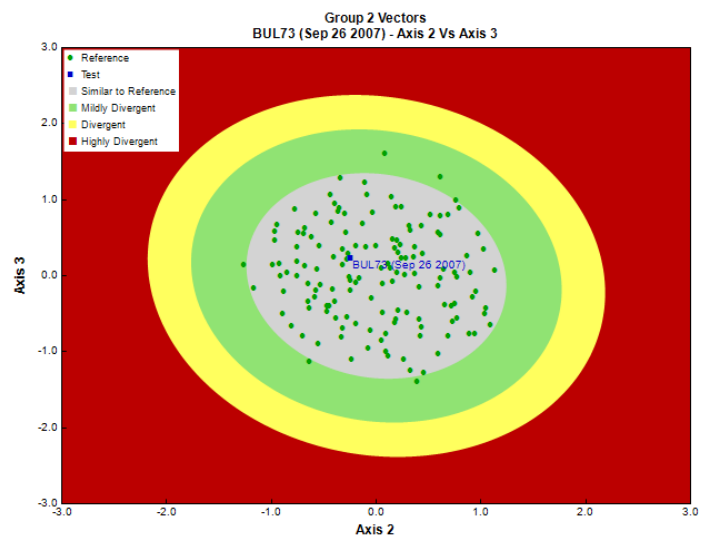
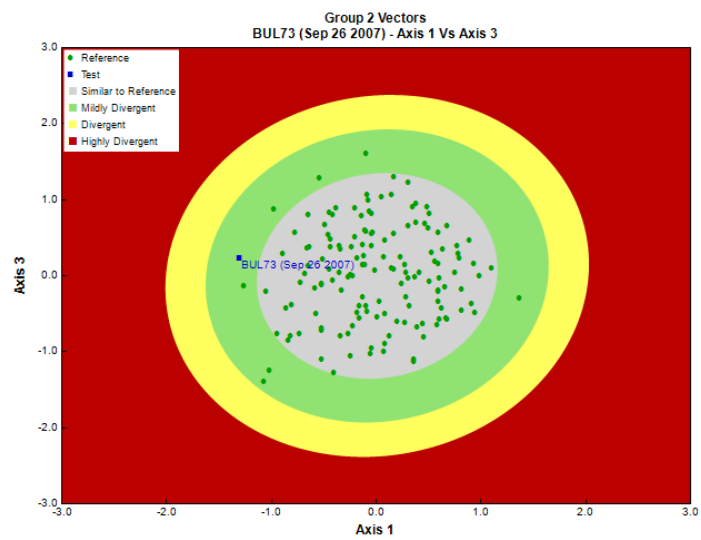
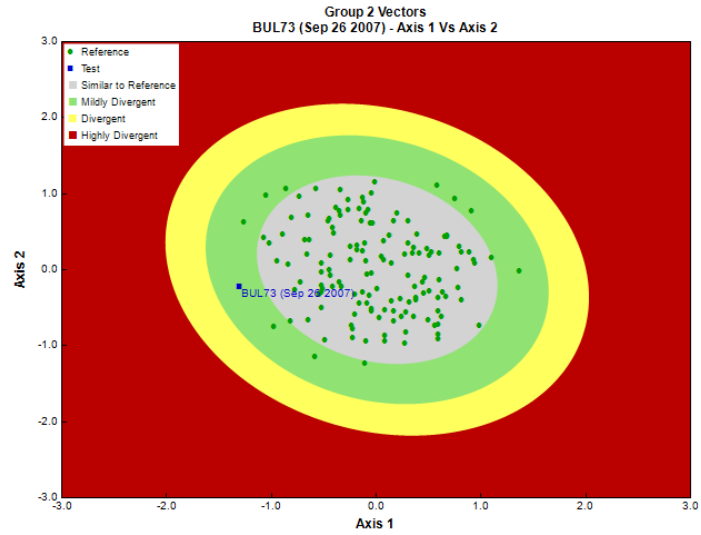












Appendix 10-G Tissue Analytical Results, Tenas Project, 2019

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton
Site		WQS01	WQS01	WQS01	WQS02	WQS02	WQS02	WQS04B	WQS04B
Replicate		1	2	3	1	2	3	1	2
Sample ID		WQS-01 rep 1	WQS-01 rep 2	WQS-01 rep 3	WQS-02 rep 1	WQS-02 rep 2	WQS-02 rep 3	WQS-04B rep 1	WQS-04B rep 2
QAQC		Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	-	-	-	-	-	-	-	-
Moisture (%)	-	-	-	-	-	-	-	-	-
Arsenic (As)	0.2	6.49	4.29	4.61	4.70	5.10	5.09	8.30	6.26
Cadmium (Cd)	0.06 - 0.2	0.103	0.086	0.100	0.076	0.094	0.098	0.210	0.123
Chromium (Cr)	0.2	7.47	37.78	8.98	17.22	18.75	16.73	27.83	26.04
Cobalt (Co)	0.01	7.64	9.25	7.59	7.53	8.32	7.59	8.50	7.37
Copper (Cu)	0.01	15.5	19.9	17.5	18.5	19.6	18.9	21.9	15.6
Iron (Fe)	2 - 12	19,341	20,060	16,968	18,231	19,130	17,182	18,524	16,215
Lead (Pb)	0.00059748	2.62	2.79	2.35	2.76	3.01	2.74	3.61	3.18
Manganese (Mn)	0.01	314.8	344.1	352.6	485.7	457.5	541.9	581.9	564.1
Mercury (Hg)	0.015	0.033	0.040	0.049	0.058	0.059	0.064	0.103	0.073
Molybdenum (Mo)	0.025038	0.216	0.186	0.163	0.172	0.203	0.181	0.385	0.341
Nickel (Ni)	0.01	15.64	56.69	15.89	27.86	31.29	27.29	43.39	39.86
Selenium (Se)	0.25	0.313	0.383	0.425	0.450	0.487	0.524	0.701	0.465
Uranium (U)	0.002	0.2742	0.3287	0.2630	0.2961	0.2947	0.2911	0.3645	0.3600
Zinc (Zn)	0.2 - 0.6	64.2	64.9	61.5	60.1	64.5	59.6	78.2	65.4

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton
Site		WQS04B	WQS03-DS	WQS03-DS	WQS03-DS	WQS18	WQS18	WQS18	WQS06-US
Replicate		3	1	2	3	1	2	3	1
Sample ID		WQS-04B rep 3	WQS-21 rep1	WQS-21 rep2	WQS-21 rep3	WQS-20 rep1	WQS-20 rep2	WQS-20 rep3	WQS-23 rep1
QAQC		Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	-	0.5532	0.5190	0.6746	0.8246	0.9878	0.0906	0.1595
Moisture (%)	-	-	99.5	99.9	44.6	99.3	99.8	92.3	91.8
Arsenic (As)	0.2	9.10	8.66	9.21	6.62	6.45	13.66	7.77	9.93
Cadmium (Cd)	0.06 - 0.2	0.238	<0.200	<0.200	<0.200	0.208	2.658	0.224	0.891
Chromium (Cr)	0.2	200.41	10.95	8.47	9.60	7.36	10.74	13.52	9.66
Cobalt (Co)	0.01	16.65	8.92	8.15	5.96	6.90	10.52	7.99	10.73
Copper (Cu)	0.01	28.8	22.4	23.5	13.2	16.1	27.4	20.5	66.7
Iron (Fe)	2 - 12	23,827	17,785	15,241	15,585	15,504	17,748	17,496	18,031
Lead (Pb)	0.00059748	4.69	5.10	5.09	3.54	3.67	6.69	4.50	4.90
Manganese (Mn)	0.01	1217.6	441.6	360.5	240.7	335.1	696.4	346.9	634.6
Mercury (Hg)	0.015	0.086	0.068	0.139	0.111	0.085	0.212	0.104	0.112
Molybdenum (Mo)	0.025038	0.839	0.785	0.612	0.308	0.390	1.602	0.883	0.568
Nickel (Ni)	0.01	261.47	19.43	20.07	20.03	14.43	26.12	17.78	19.01
Selenium (Se)	0.25	0.860	0.666	1.074	<0.250	0.420	1.777	0.762	0.524
Uranium (U)	0.002	0.4393	0.4034	0.4982	0.3329	0.3551	0.9068	0.3775	0.4059
Zinc (Zn)	0.2 - 0.6	117.2	78.9	88.7	59.7	67.4	101.7	80.0	176.4

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton
Site		WQS06-US	WQS06-US	WQS06-US	WQS06-US	WQS07	WQS07	WQS07
Replicate		1	2	3	3	1	2	3
Sample ID		DUP rep1	DUP rep2	WQS-23 rep3	DUP rep3	WQS-22 rep1	WQS-22 rep2	WQS-22 rep3
QAQC		Field Duplicate	Field Duplicate	Regular	Field Duplicate	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	1.0918	0.6385	0.1095	0.5013	0.6853	0.6949	0.7917
Moisture (%)	-	99.0	99.6	99.3	89.0	100.0	99.9	99.9
Arsenic (As)	0.2	11.57	14.76	12.39	8.22	5.70	8.73	5.44
Cadmium (Cd)	0.06 - 0.2	1.910	0.969	1.936	0.755	1.770	0.870	1.054
Chromium (Cr)	0.2	8.81	10.11	7.04	9.57	5.50	6.94	6.08
Cobalt (Co)	0.01	23.11	63.94	17.58	12.62	13.42	8.37	6.91
Copper (Cu)	0.01	123.4	286.9	97.9	75.4	52.4	55.1	41.6
Iron (Fe)	2 - 12	21,603	20,118	20,173	17,989	8,557	16,333	8,513
Lead (Pb)	0.00059748	6.83	7.13	9.03	5.69	3.66	4.87	2.82
Manganese (Mn)	0.01	1619.0	5824.8	1494.0	600.1	936.5	469.8	372.3
Mercury (Hg)	0.015	0.137	0.359	0.169	0.077	0.106	0.118	0.133
Molybdenum (Mo)	0.025038	1.134	1.739	0.805	0.784	0.835	0.592	0.518
Nickel (Ni)	0.01	18.21	37.63	17.33	14.40	13.95	14.51	10.00
Selenium (Se)	0.25	1.303	4.847	1.611	0.484	1.404	0.780	1.511
Uranium (U)	0.002	0.3903	0.6809	0.4161	0.3310	0.3205	0.3590	0.2324
Zinc (Zn)	0.2 - 0.6	236.5	453.9	257.4	193.8	125.3	147.4	82.7

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton
Site		WQS05	WQS05	WQS05	WQS05	WQS05	WQS05
Replicate		1	1	2	2	3	3
Sample ID		WQS-05 rep 1	Duplicate (WQS-05) rep 1	WQS-05 rep 2	Duplicate (WQS-05) rep 2	WQS-05 rep 3	Duplicate (WQS-05) rep 3
QAQC		Regular	Field Duplicate	Regular	Field Duplicate	Regular	Field Duplicate
Year	RDL	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	-	-	-	-	-	-
Moisture (%)	-	-	-	-	-	-	-
Arsenic (As)	0.2	6.49	7.10	4.99	7.74	6.08	7.57
Cadmium (Cd)	0.06 - 0.2	0.261	0.245	0.184	0.281	0.249	0.321
Chromium (Cr)	0.2	42.54	10.29	24.85	140.20	9.09	32.27
Cobalt (Co)	0.01	7.98	7.55	6.18	12.30	7.60	8.19
Copper (Cu)	0.01	25.7	33.0	19.6	30.1	33.6	27.6
Iron (Fe)	2 - 12	16,640	17,604	13,551	19,374	15,889	17,737
Lead (Pb)	0.00059748	3.60	4.22	2.76	4.51	3.55	4.40
Manganese (Mn)	0.01	334.7	364.4	236.5	415.7	356.9	360.2
Mercury (Hg)	0.015	0.083	0.086	0.060	0.087	0.094	0.080
Molybdenum (Mo)	0.025038	0.421	0.474	0.306	0.537	0.453	0.586
Nickel (Ni)	0.01	57.30	18.34	36.57	171.07	17.58	46.17
Selenium (Se)	0.25	0.394	0.486	0.338	0.460	0.445	0.478
Uranium (U)	0.002	0.3376	0.3833	0.3081	0.3940	0.3242	0.4196
Zinc (Zn)	0.2 - 0.6	121.0	125.2	89.7	140.5	121.3	130.1

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton
Site		WQS16	WQS16	WQS16	WQS17	WQS17	WQS17	WQS08	WQS08
Replicate		1	2	3	1	2	3	1	2
Sample ID		WQS-25 rep1	WQS-25 rep2	WQS-25 rep3	WQS-24 rep1	WQS-24 rep2	WQS-24 rep3	WQS-08 rep 1	WQS-08 rep 2
QAQC		Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	0.5327	0.3253	0.4874	0.2541	0.0750	0.6475	-	-
Moisture (%)	-	99.9	100.0	100.0	99.8	99.9	100.0	-	-
Arsenic (As)	0.2	4.36	4.31	0.86	0.43	7.07	1.73	2.67	2.35
Cadmium (Cd)	0.06 - 0.2	0.714	1.334	<0.200	0.815	0.933	0.303	0.219	0.210
Chromium (Cr)	0.2	3.27	3.65	2.29	14.21	3.77	2.90	7.37	6.99
Cobalt (Co)	0.01	1.73	3.06	0.40	0.80	3.31	1.13	6.39	5.87
Copper (Cu)	0.01	9.2	17.1	2.7	5.7	9.9	3.7	17.3	14.8
Iron (Fe)	2 - 12	3,819	5,066	874	762	6,877	2,120	15,034	14,891
Lead (Pb)	0.00059748	3.05	3.60	0.51	0.23	3.33	0.84	8.96	7.53
Manganese (Mn)	0.01	360.4	789.8	197.0	119.8	780.1	514.7	612.0	437.6
Mercury (Hg)	0.015	0.095	0.125	0.029	0.116	0.114	0.032	0.045	0.037
Molybdenum (Mo)	0.025038	0.268	0.272	0.060	0.192	0.257	0.210	0.497	0.412
Nickel (Ni)	0.01	3.85	4.76	1.09	13.84	5.93	2.13	13.70	12.96
Selenium (Se)	0.25	0.288	0.275	<0.250	<0.250	<0.250	<0.250	0.354	0.308
Uranium (U)	0.002	0.1715	0.1243	0.0357	0.0264	0.1725	0.0896	0.4433	0.4371
Zinc (Zn)	0.2 - 0.6	79.4	163.0	32.8	87.0	67.6	40.8	97.3	84.4

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton	Periphyton
Site		WQS08	WQS09	WQS09	WQS09	WQS11-US	WQS11-US	WQS11-US
Replicate		3	1	2	3	1	2	3
Sample ID		WQS-08 rep 3	WQS-09 rep 1	WQS-09 rep 2	WQS-09 rep 3	WQS-11-US rep 1	WQS-11-US rep 2	WQS-11-US rep 3
QAQC		Regular	Regular	Regular	Regular	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	-	-	-	-	-	-	-
Moisture (%)	-	-	-	-	-	-	-	-
Arsenic (As)	0.2	2.53	2.40	3.79	2.94	5.82	8.69	5.60
Cadmium (Cd)	0.06 - 0.2	0.181	0.130	0.212	0.180	0.161	0.363	0.137
Chromium (Cr)	0.2	9.39	5.06	370.86	40.63	9.27	24.93	21.15
Cobalt (Co)	0.01	5.52	4.19	19.19	7.15	6.04	8.75	6.84
Copper (Cu)	0.01	15.3	10.6	23.3	16.6	12.9	19.0	15.1
Iron (Fe)	2 - 12	14,946	12,842	22,592	16,408	14,732	19,606	16,297
Lead (Pb)	0.00059748	8.00	5.18	10.97	8.71	3.87	5.92	4.01
Manganese (Mn)	0.01	410.2	248.6	632.4	434.5	326.1	641.7	559.6
Mercury (Hg)	0.015	0.040	0.040	0.045	0.041	0.063	0.078	0.066
Molybdenum (Mo)	0.025038	0.394	0.287	0.946	0.412	0.425	0.670	0.408
Nickel (Ni)	0.01	15.02	9.71	462.40	54.56	18.49	41.16	28.89
Selenium (Se)	0.25	0.306	0.231	0.466	0.330	0.289	0.419	0.294
Uranium (U)	0.002	0.3788	0.2509	0.6845	0.4622	0.4550	0.6342	0.4689
Zinc (Zn)	0.2 - 0.6	84.7	61.1	103.6	90.4	75.2	105.3	82.2

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Periphyton	Periphyton	Periphyton	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate
Site		WQS12	WQS12	WQS12	WQS01	WQS01	WQS01	WQS02	WQS02
Replicate		1	2	3	1	2	3	1	2
Sample ID		WQS-12 rep 1	WQS-12 rep 2	WQS-12 rep 3	WQS-01 rep 1	WQS-01 rep 2	WQS-01 rep 3	WQS-02 rep 1	WQS-02 rep 2
QAQC		Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	-	-	-	0.0499	0.0734	0.0437	0.0709	0.0039
Moisture (%)	-	-	-	-	80.0	89.2	64.3	82.5	94.9
Arsenic (As)	0.2	6.13	4.92	4.70	2.77	2.00	0.28	2.47	1.96
Cadmium (Cd)	0.06 - 0.2	0.153	0.135	0.137	2.071	1.574	0.651	0.971	2.002
Chromium (Cr)	0.2	46.98	16.90	6.19	31.45	9.37	1.87	7.56	2.15
Cobalt (Co)	0.01	7.83	6.15	5.85	5.00	2.51	0.14	1.94	1.48
Copper (Cu)	0.01	16.8	15.3	14.5	36.4	32.8	27.1	25.3	55.9
Iron (Fe)	2 - 12	18,042	14,155	15,342	2,442	2,502	114	1,625	534
Lead (Pb)	0.00059748	5.20	4.54	4.65	0.32	0.62	0.02	0.38	0.05
Manganese (Mn)	0.01	609.3	517.5	507.4	150.4	383.8	33.0	308.0	166.4
Mercury (Hg)	0.015	0.059	0.061	0.065	0.090	0.114	0.067	0.104	0.160
Molybdenum (Mo)	0.025038	0.573	0.408	0.367	0.568	0.610	0.373	0.573	0.538
Nickel (Ni)	0.01	64.39	27.53	14.01	46.28	13.10	0.61	10.46	0.41
Selenium (Se)	0.25	0.394	0.304	0.350	7.673	4.832	3.768	10.763	4.321
Uranium (U)	0.002	0.5667	0.4232	0.4779	0.0670	0.1321	0.0023	0.1270	0.0180
Zinc (Zn)	0.2 - 0.6	86.4	76.2	77.4	189.7	179.8	101.0	115.9	218.1

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate
Site		WQS02	WQS04B	WQS04B	WQS04B	WQS03-DS	WQS03-DS	WQS03-DS	WQS18
Replicate		3	1	2	3	1	2	3	1
Sample ID		WQS-02 rep 3	WQS-04B rep 1	WQS-04B rep 2	WQS-04B rep 3	WQS-21 rep1	WQS-21 rep2	WQS-21 rep3	WQS-20 rep1
QAQC		Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	0.0157	0.0061	0.0323	0.0055	0.0473	0.0094	0.0047	0.1152
Moisture (%)	-	88.5	100.0	81.4	100.0	75.9	96.8	61.7	99.7
Arsenic (As)	0.2	1.17	0.92	1.86	0.27	2.33	1.14	4.54	0.83
Cadmium (Cd)	0.06 - 0.2	1.756	0.282	2.571	1.073	1.546	3.568	4.685	1.566
Chromium (Cr)	0.2	30.60	37.07	19.26	2.93	6.77	2.37	3.25	2.63
Cobalt (Co)	0.01	2.46	2.21	2.69	0.48	3.05	5.39	19.97	1.84
Copper (Cu)	0.01	20.0	11.2	24.9	21.3	24.7	25.8	23.8	7.5
Iron (Fe)	2 - 12	1,808	1,880	1,851	271	1,501	1,151	1,850	885
Lead (Pb)	0.00059748	0.53	0.50	0.48	0.18	0.72	0.44	0.71	0.34
Manganese (Mn)	0.01	150.7	147.0	145.0	27.0	80.3	254.8	144.3	123.3
Mercury (Hg)	0.015	0.154	0.058	0.150	0.139	0.164	0.261	0.243	0.141
Molybdenum (Mo)	0.025038	0.516	0.178	0.549	0.298	0.319	0.564	0.990	0.310
Nickel (Ni)	0.01	46.10	46.30	28.20	3.09	12.58	4.10	5.99	2.69
Selenium (Se)	0.25	3.823	0.358	3.639	2.411	2.193	2.297	8.835	0.990
Uranium (U)	0.002	0.0662	0.0403	0.0738	0.0208	0.0865	0.0816	0.1026	0.0635
Zinc (Zn)	0.2 - 0.6	127.0	56.2	108.1	161.7	192.9	297.6	264.2	149.9

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate
Site		WQS18	WQS18	WQS06-US	WQS06-US	WQS06-US	WQS06-US	WQS06-US	WQS06-US
Replicate		2	3	1	1	2	2	3	3
Sample ID		WQS-20 rep2	WQS-20 rep3	WQS-23 rep1	DUP rep1	WQS-23 rep2	DUP rep2	WQS-23 rep3	DUP rep3
QAQC		Regular	Regular	Regular	Field Duplicate	Regular	Field Duplicate	Regular	Field Duplicate
Year	RDL	2019	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	0.0123	0.0107	0.0276	0.0216	0.0113	0.1353	0.0226	0.0573
Moisture (%)	-	90.2	86.0	90.9	94.0	98.2	72.4	92.0	96.3
Arsenic (As)	0.2	0.63	0.22	0.54	0.88	1.53	0.44	0.33	0.52
Cadmium (Cd)	0.06 - 0.2	3.133	2.043	6.103	13.285	9.976	0.908	3.272	3.155
Chromium (Cr)	0.2	2.37	1.53	2.14	1.42	1.95	6.58	1.51	1.93
Cobalt (Co)	0.01	1.47	0.69	4.09	18.29	16.16	2.32	2.16	2.36
Copper (Cu)	0.01	27.0	42.2	53.7	61.5	40.8	31.2	39.1	40.6
Iron (Fe)	2 - 12	1,262	225	520	344	618	310	152	257
Lead (Pb)	0.00059748	0.36	0.08	0.22	0.12	0.26	0.14	0.06	0.08
Manganese (Mn)	0.01	195.5	83.2	154.2	209.5	243.6	140.8	68.0	53.5
Mercury (Hg)	0.015	0.312	0.226	0.228	0.339	0.485	0.073	0.163	0.126
Molybdenum (Mo)	0.025038	0.397	0.427	0.404	0.724	0.682	0.755	0.162	0.185
Nickel (Ni)	0.01	2.91	0.88	2.37	0.54	1.38	9.13	0.79	1.55
Selenium (Se)	0.25	2.139	2.313	2.038	1.829	1.972	1.704	1.475	1.612
Uranium (U)	0.002	0.0760	0.0137	0.0450	0.0544	0.1820	0.0603	0.0125	0.0210
Zinc (Zn)	0.2 - 0.6	325.9	211.4	264.0	572.5	598.0	125.8	198.1	138.7

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate
Site		WQS07	WQS07	WQS07	WQS05	WQS05	WQS05
Replicate		1	2	3	1	1	2
Sample ID		WQS-22 rep1	WQS-22 rep2	WQS-22 rep3	WQS-05 rep 1	Duplicate (WQS-05) rep 1	WQS-05 rep 2
QAQC		Regular	Regular	Regular	Regular	Field Duplicate	Regular
Year	RDL	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	0.0069	0.0448	0.0075	0.0418	0.0829	0.1408
Moisture (%)	-	94.2	99.6	81.3	86.6	77.2	69.2
Arsenic (As)	0.2	0.56	1.87	0.30	0.39	1.02	0.50
Cadmium (Cd)	0.06 - 0.2	6.296	14.756	3.459	1.688	0.810	1.408
Chromium (Cr)	0.2	1.74	2.01	1.43	3.89	14.34	2.64
Cobalt (Co)	0.01	2.47	9.32	0.36	0.80	3.15	2.25
Copper (Cu)	0.01	27.2	60.3	27.6	43.5	33.5	25.6
Iron (Fe)	2 - 12	244	948	114	221	1,114	563
Lead (Pb)	0.00059748	0.15	0.51	0.08	0.20	0.29	0.22
Manganese (Mn)	0.01	60.8	216.6	27.7	29.2	42.6	134.4
Mercury (Hg)	0.015	0.186	0.363	0.158	0.150	0.098	0.120
Molybdenum (Mo)	0.025038	0.337	0.696	0.235	0.319	0.539	0.410
Nickel (Ni)	0.01	0.41	1.32	0.25	4.93	18.93	3.71
Selenium (Se)	0.25	1.468	2.549	3.518	1.782	4.793	2.233
Uranium (U)	0.002	0.0278	0.1275	0.0056	0.0736	0.1110	0.0325
Zinc (Zn)	0.2 - 0.6	206.6	420.9	244.7	161.7	112.7	140.5

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate
Site		WQS05	WQS05	WQS05	WQS16	WQS16	WQS16
Replicate		2	3	3	1	2	3
Sample ID		Duplicate (WQS-05) rep 2	WQS-05 rep 3	Duplicate (WQS-05) rep 3	WQS-25 rep1	WQS-25 rep2	WQS-25 rep3
QAQC		Field Duplicate	Regular	Field Duplicate	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	0.0577	0.0383	0.1539	0.0161	0.1449	0.0744
Moisture (%)	-	79.5	77.5	81.6	71.4	91.2	80.5
Arsenic (As)	0.2	0.73	1.26	4.01	2.59	0.48	0.69
Cadmium (Cd)	0.06 - 0.2	1.692	1.827	2.755	2.650	1.528	2.152
Chromium (Cr)	0.2	6.08	10.39	71.96	19.43	5.49	8.10
Cobalt (Co)	0.01	2.97	2.39	10.67	1.95	0.52	0.76
Copper (Cu)	0.01	48.2	52.6	75.4	27.8	20.2	34.2
Iron (Fe)	2 - 12	1,240	1,658	4,675	2,350	228	488
Lead (Pb)	0.00059748	1.19	0.43	1.72	1.36	0.25	0.31
Manganese (Mn)	0.01	151.7	77.3	623.0	184.6	38.1	42.2
Mercury (Hg)	0.015	0.213	0.170	0.179	0.204	0.150	0.191
Molybdenum (Mo)	0.025038	0.942	0.512	0.714	0.457	0.198	0.389
Nickel (Ni)	0.01	7.03	15.96	102.13	26.62	7.96	12.87
Selenium (Se)	0.25	3.890	3.399	2.509	0.309	0.286	0.393
Uranium (U)	0.002	0.0552	0.0730	0.2119	0.1215	0.0429	0.0728
Zinc (Zn)	0.2 - 0.6	201.0	161.1	281.0	233.4	137.0	307.3

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate
Site		WQS17	WQS17	WQS17	WQS08	WQS08	WQS08	WQS09	WQS09
Replicate		1	2	3	1	2	3	1	2
Sample ID		WQS-24 rep1	WQS-24 rep2	WQS-24 rep3	WQS-08 rep 1	WQS-08 rep 2	WQS-08 rep 3	WQS-09 rep 1	WQS-09 rep 2
QAQC		Regular	Regular	Regular	Regular	Regular	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	0.0490	0.0233	0.0384	0.0056	0.0484	0.0296	0.0392	0.0046
Moisture (%)	-	81.0	72.5	77.6	98.2	89.7	72.0	84.2	80.4
Arsenic (As)	0.2	3.30	2.98	2.50	0.07	0.25	0.30	0.24	<0.200
Cadmium (Cd)	0.06 - 0.2	2.569	1.781	1.309	0.203	1.003	1.134	1.173	0.813
Chromium (Cr)	0.2	22.01	3.43	3.55	2.35	5.71	1.94	2.64	2.26
Cobalt (Co)	0.01	2.86	0.89	0.71	0.09	0.46	0.42	0.44	0.10
Copper (Cu)	0.01	34.7	25.2	16.4	4.8	44.7	38.9	31.9	27.0
Iron (Fe)	2 - 12	3,061	863	650	130	387	117	271	151
Lead (Pb)	0.00059748	1.32	0.79	0.41	0.06	0.23	0.05	0.16	0.04
Manganese (Mn)	0.01	767.2	191.4	179.0	13.4	61.5	46.2	44.9	15.7
Mercury (Hg)	0.015	0.393	0.209	0.150	0.023	0.134	0.109	0.109	0.087
Molybdenum (Mo)	0.025038	0.495	0.295	0.341	0.115	0.550	0.759	0.413	0.312
Nickel (Ni)	0.01	29.14	4.73	3.91	0.56	6.35	0.81	2.72	0.13
Selenium (Se)	0.25	0.433	0.296	0.233	0.388	4.208	3.002	3.484	2.702
Uranium (U)	0.002	0.1380	0.0867	0.0780	0.0061	0.0147	0.0053	0.0112	0.0056
Zinc (Zn)	0.2 - 0.6	251.1	187.0	163.5	46.0	150.1	164.3	202.1	174.4

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-G. Tissue Analytical Results, Tenas Project, 2019

Matrix		Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate	Benthic Invertebrate
Site		WQS09	WQS11-US	WQS11-US	WQS11-US	WQS12	WQS12	WQS12
Replicate		3	1	2	3	1	2	3
Sample ID		WQS-09 rep 3	WQS-11-US rep 1	WQS-11-US rep 2	WQS-11-US rep 3	WQS-12 rep 1	WQS-12 rep 2	WQS-12 rep 3
QAQC		Regular	Regular	Regular	Regular	Regular	Regular	Regular
Year	RDL	2019	2019	2019	2019	2019	2019	2019
Wet Weight (g)	-	0.0610	0.0083	0.0188	0.2415	0.0042	0.0012	0.2089
Moisture (%)	-	80.0	97.6	89.9	83.6	85.7	100.0	79.2
Arsenic (As)	0.2	2.36	2.08	1.30	2.37	0.27	3.42	0.74
Cadmium (Cd)	0.06 - 0.2	15.178	3.446	2.117	2.209	1.243	0.464	0.630
Chromium (Cr)	0.2	8.70	7.73	2.55	2.44	1.81	3.95	13.16
Cobalt (Co)	0.01	20.16	4.25	1.45	2.18	0.38	4.00	1.25
Copper (Cu)	0.01	76.1	46.8	20.9	101.6	42.4	30.4	38.5
Iron (Fe)	2 - 12	2,690	4,273	602	703	137	10,890	884
Lead (Pb)	0.00059748	1.84	1.37	0.68	0.76	0.14	4.82	0.35
Manganese (Mn)	0.01	382.1	446.6	967.8	491.1	45.7	283.6	415.6
Mercury (Hg)	0.015	0.286	0.201	0.125	0.120	0.144	0.181	0.062
Molybdenum (Mo)	0.025038	1.030	0.978	0.404	0.854	0.207	0.362	0.745
Nickel (Ni)	0.01	13.15	13.30	3.49	5.41	0.51	8.41	19.46
Selenium (Se)	0.25	9.077	2.700	1.492	1.107	2.626	2.157	0.840
Uranium (U)	0.002	0.7030	0.1854	0.1846	0.3166	0.0197	0.2630	0.1303
Zinc (Zn)	0.2 - 0.6	607.3	241.2	142.7	209.8	130.5	141.3	178.9

All units are in mg/kg dry weight unless otherwise noted.

RDL = realized detection limit

Appendix 10-H *Tissue QA/QC, Tenas Project, 2019*

Appendix 10-H. Tissue QA/QC, Tenas Project, 2019

Matrix Site Replicate Year	Periphyton WQS06-US 1 2019			Periphyton WQS06-US 3 2019			Periphyton WQS05 1 2019			Periphyton WQS05 2 2019			Periphyton WQS05 3 2019			Benthic Invertebrate WQS06-US 1 2019		
Sample	Regular	Split	RPD	Regular	Split	RPD	Regular	Split	RPD	Regular	Split	RPD	Regular	Split	RPD	Regular	Split	RPD
Arsenic (As)	9.93	11.57	15.3	12.39	8.22	<i>40.4</i>	6.49	7.10	9.0	4.99	7.74	<i>43.2</i>	6.08	7.57	<i>21.9</i>	0.54	0.88	n/a
Cadmium (Cd)	0.89	1.91	72.8	1.94	0.76	87.7	0.26	0.25	n/a	0.18	0.28	n/a	0.25	0.32	<i>25.2</i>	6.10	13.28	74.1
Chromium (Cr)	9.66	8.81	9.3	7.04	9.57	<i>30.5</i>	42.54	10.29	122.1	24.85	140.20	139.8	9.09	32.27	112.1	2.14	1.42	<i>40.2</i>
Cobalt (Co)	10.73	23.11	73.2	17.58	12.62	<i>32.9</i>	7.98	7.55	5.6	6.18	12.30	66.3	7.60	8.19	7.5	4.09	18.29	127.0
Copper (Cu)	66.7	123.4	59.6	97.9	75.4	<i>26.0</i>	25.7	33.0	<i>24.9</i>	19.6	30.1	<i>42.3</i>	33.6	27.6	19.6	53.7	61.5	13.6
Iron (Fe)	18,031	21,603	18.0	20,173	17,989	11.4	16,640	17,604	5.6	13,551	19,374	<i>35.4</i>	15,889	17,737	11.0	520	344	<i>40.8</i>
Lead (Pb)	4.90	6.83	<i>32.9</i>	9.03	5.69	<i>45.4</i>	3.60	4.22	15.9	2.76	4.51	<i>48.1</i>	3.55	4.40	<i>21.4</i>	0.22	0.12	59.7
Manganese (Mn)	634.6	1619.0	87.4	1494.0	600.1	85.4	334.7	364.4	8.5	236.5	415.7	55.0	356.9	360.2	0.9	154.2	209.5	<i>30.4</i>
Mercury (Hg)	0.112	0.137	<i>20.2</i>	0.169	0.077	74.9	0.083	0.086	3.5	0.060	0.087	<i>37.1</i>	0.094	0.080	16.1	0.228	0.339	<i>39.0</i>
Molybdenum (Mo)	0.57	1.13	66.5	0.80	0.78	2.6	0.42	0.47	11.8	0.31	0.54	54.8	0.45	0.59	<i>25.6</i>	0.40	0.72	56.8
Nickel (Ni)	19.0	18.2	4.3	17.3	14.4	18.5	57.3	18.3	103.0	36.6	171.1	129.5	17.6	46.2	89.7	2.4	0.5	125.6
Selenium (Se)	0.52	1.30	85.3	1.61	0.48	107.6	0.39	0.49	n/a	0.34	0.46	n/a	0.44	0.48	n/a	2.04	1.83	10.9
Uranium (U)	0.41	0.39	3.9	0.42	0.33	<i>22.8</i>	0.34	0.38	12.7	0.31	0.39	<i>24.5</i>	0.32	0.42	<i>25.6</i>	0.05	0.05	18.8
Zinc (Zn)	176.4	236.5	<i>29.1</i>	257.4	193.8	<i>28.2</i>	121.0	125.2	3.5	89.7	140.5	<i>44.2</i>	121.3	130.1	7.0	264.0	572.5	73.7

All units are in mg/kg dry weight unless otherwise noted.

RPD = relative percent difference

n/a = not applicable when both values are less than five times the detection limit.

Red and italicized values exceed 20% relative percent difference and are more than five times the detection limit.

Red and bold values exceed 50% relative percent difference and are more than five times the detection limit.

Appendix 10-H. Tissue QA/QC, Tenas Project, 2019

Matrix Site Replicate Year	Benthic Invertebrate WQS06-US 2 2019			Benthic Invertebrate WQS06-US 3 2019			Benthic Invertebrate WQS05 1 2019			Benthic Invertebrate WQS05 2 2019			Benthic Invertebrate WQS05 3 2019		
Sample	Regular	Split	RPD	Regular	Split	RPD	Regular	Split	RPD	Regular	Split	RPD	Regular	Split	RPD
Arsenic (As)	1.53	0.44	110.5	0.33	0.52	n/a	0.39	1.02	89.0	0.50	0.73	n/a	1.26	4.01	104.5
Cadmium (Cd)	9.98	0.91	166.6	3.27	3.16	3.6	1.69	0.81	70.3	1.41	1.69	18.3	1.83	2.76	40.5
Chromium (Cr)	1.95	6.58	108.7	1.51	1.93	24.6	3.89	14.34	114.6	2.64	6.08	78.9	10.39	71.96	149.5
Cobalt (Co)	16.16	2.32	149.7	2.16	2.36	9.0	0.80	3.15	118.6	2.25	2.97	27.6	2.39	10.67	126.9
Copper (Cu)	40.8	31.2	26.7	39.1	40.6	3.8	43.5	33.5	25.9	25.6	48.2	61.2	52.6	75.4	35.5
Iron (Fe)	618	310	66.5	152	257	51.0	221	1,114	133.7	563	1,240	75.2	1,658	4,675	95.3
Lead (Pb)	0.26	0.14	63.1	0.06	0.08	31.7	0.20	0.29	37.3	0.22	1.19	138.7	0.43	1.72	119.8
Manganese (Mn)	243.6	140.8	53.5	68.0	53.5	23.9	29.2	42.6	37.4	134.4	151.7	12.1	77.3	623.0	155.8
Mercury (Hg)	0.485	0.073	147.5	0.163	0.126	25.8	0.150	0.098	42.1	0.120	0.213	56.1	0.170	0.179	4.9
Molybdenum (Mo)	0.68	0.75	10.2	0.16	0.19	13.7	0.32	0.54	51.3	0.41	0.94	78.6	0.51	0.71	32.9
Nickel (Ni)	1.4	9.1	147.4	0.8	1.6	65.6	4.9	18.9	117.3	3.7	7.0	61.8	16.0	102.1	145.9
Selenium (Se)	1.97	1.70	14.6	1.48	1.61	8.9	1.78	4.79	91.6	2.23	3.89	54.1	3.40	2.51	30.1
Uranium (U)	0.18	0.06	100.4	0.01	0.02	50.9	0.07	0.11	40.5	0.03	0.06	51.7	0.07	0.21	97.5
Zinc (Zn)	598.0	125.8	130.5	198.1	138.7	35.3	161.7	112.7	35.7	140.5	201.0	35.4	161.1	281.0	54.3

All units are in mg/kg dry weight unless otherwise noted.

RPD = relative percent difference

n/a = not applicable when both values are less than five times the detection limit.

Red and italicized values exceed 20% relative percent difference and are more than five times the detection limit.

Red and bold values exceed 50% relative percent difference and are more than five times the detection limit.

Appendix 11-A *Fish Stream Morphology and Habitat Information,
Tenas Project, 2017 and 2018*

Appendix 11-A. Fish Stream Morphology and Habitat Information, Tenas Project, 2017 and 2018

Stream	Site ID	Year of Measurements	Channel Width						Wetted Width					
			Width (m)	Width (m)	Width (m)	Width (m)	Width (m)	Mean Channel Width (m)	Width (m)	Width (m)	Width (m)	Width (m)	Width (m)	Mean Wetted Width (m)
Tenas Creek	WQS01	2017	4.3	4.5	3.4	4	4.3	4.1	8	16	14	12	9.3	11.86
		2018	30	20	25	-	-	25	7	5	8	-	-	6.67
	WQS02	2017	8	8.8	11	15	10.2	10.6	4.2	4.7	5	5.3	4	4.64
Four Creek	WQS03	2018	4	1.8	2.5	3	-	2.83	-	-	-	-	-	-
Goathorn Creek	WQS05	2017	16	14	16	20	18	16.8	11	6	8.5	12	12	9.9
Telkwa River	WQS08	2017	38	35	35	-	-	36	30	32	30	-	-	30.67
	WQS09	2017	45	42	45	-	-	44	32	30	28	-	-	30
Bulkley River	WQS11B	2017	120	-	-	-	-	120	90	-	-	-	-	90
	WQS12B	2017	120	-	-	-	-	120	85	-	-	-	-	85
Unnamed Tributary	Four Creek Trib	2018	1.7	2.39	2	2.2	-	2.07	1.1	1.95	1.23	1.25	-	1.38

Stream	Site ID	Year of Measurements	Residual Pools								Bankfull Depth			
			Depth (m)	Depth (m)	Depth (m)	Depth (m)	Depth (m)	Depth (m)	Depth (m)	Mean Residual Pool Depth (m)	Depth (m)	Depth (m)	Depth (m)	Mean Bankfull Depth (m)
Tenas Creek	WQS01	2017	0.3	0.4	0.3	0.3	-	-	-	0.33	0.6	1.2	-	0.9
		2018	0.3	0.25	0.15	-	-	-	-	0.23	1.2	2	-	1.6
	WQS02	2017	0.2	0.3	0.4	0.2	-	-	-	0.28	1.5	0.9	-	1.2
Four Creek	WQS03	2018	-	-	-	-	-	-	-	-	-	-	-	-
Goathorn Creek	WQS05	2017	0.3	0.3	0.4	0.7	-	-	-	0.43	0.5	0.4	-	0.45
Telkwa River	WQS08	2017	1	0.8	-	-	-	-	-	0.9	2.5	1.7	2	2.07
	WQS09	2017	0.6	0.5	-	-	-	-	-	0.55	2	2	-	2
Bulkley River	WQS11B	2017	-	-	-	-	-	-	-	-	2.5	3	-	2.75
	WQS12B	2017	0.9	0.6	-	-	-	-	-	0.75	3	3	-	3
Unnamed Tributary	Four Creek Trib	2018	0.1	0.22	0.26	0.1	0.12	0.46	0.2	0.21	0.42	0.45	0.34	0.40

Stream	Site ID	Year of Measurements	Gradient					Stage	Water Quality		
			Gradient #1 (%)	Gradient #2 (%)	Gradient #3 (%)	Gradient #4 (%)	Mean Gradient (%)		Temperature (°C)	Conductivity (µS/cm)	Turbidity
Tenas Creek	WQS01	2017	2	3	-	-	0.03	low	3	164	clear
		2018	4	4.5	-	-	4.25	moderate	5	129	lightly turbid
	WQS02	2017	3	3	4	-	0.03	moderate	2	178	clear
Four Creek	WQS03	2018	7	9	-	-	8	moderate	5	130	clear
Goathorn Creek	WQS05	2017	1.5	2	-	-	0.02	moderate	3	198	clear
Telkwa River	WQS08	2017	1.5	2	-	-	0.02	moderate	2	107	clear
	WQS09	2017	2	1.5	-	-	0.02	moderate	3	113	clear
Bulkley River	WQS11B	2017	1	1	-	-	0.01	moderate	9	60	clear
	WQS12B	2017	0.5	1	1	-	0.01	moderate	8	66	clear
Unnamed Tributary	Four Creek Trib	2018	20	21	14	4	14.75	moderate	8	157	clear

Notes:
Dash (-) means no data.
Bank Morphology: L. = Left, R. = Right
LWD = large woody debris

Appendix 11-A. Fish Stream Morphology and Habitat Information, Tenas Project, 2017 and 2018

Stream	Site ID	Year of Measurements	Cover											
			Total Cover	Small Woody Debris	Large Woody Debris	Boulders	Undercut Banks	Deep Pools	Overhanging Vegetation	Instream Vegetation	Crown Closure	Functional LWD	LWD Distribution	Instream Vegetation Type
Tenas Creek	WQS01	2017	abundant	none	trace	dominant	none	trace	trace	none	21-40%	none	-	none
		2018	trace	trace	trace	dominant	trace	sub-dominant	none	none	1-20%	few	clumped	none
	WQS02	2017	abundant	trace	trace	dominant	trace	trace	trace	none	21-40%	few	evenly distributed	none
Four Creek	WQS03	2018	abundant	sub-dominant	dominant	trace	sub-dominant	trace	trace	none	41-70%	few	evenly distributed	none
Goathorn Creek	WQS05	2017	moderate	trace	dominant	sub-dominant	sub-dominant	trace	trace	none	1-20%	few	clumped	none
Telkwa River	WQS08	2017	moderate	none	none	dominant	none	trace	trace	none	1-20%	none	-	vascular plants
	WQS09	2017	moderate	none	trace	dominant	none	trace	trace	none	1-20%	none	-	none
Bulkley River	WQS11B	2017	trace	none	trace	trace	none	trace	none	none	1-20%	none	-	none
	WQS12B	2017	moderate	trace	trace	dominant	trace	trace	trace	none	1-20%	none	-	none
Unnamed Tributary	Four Creek Trib	2018	abundant	sub-dominant	sub-dominant	dominant	none	none	sub-dominant	none	41-70%	few	evenly distributed	none

Stream	Site ID	Year of Measurements	Bank Morphology									
			L. Bank Shape	L. Bank Texture Dominant 1	L. Bank Texture Dominant 2	L. Bank Riparian Vegetation	L. Bank Riparian Vegetation Stage	R. Bank Shape	R. Bank Texture Dominant 1	R. Bank Texture Dominant 2	R. Bank Riparian Vegetation	R. Bank Riparian Vegetation Stage
Tenas Creek	WQS01	2017	sloping	gravels	fines	shrubs	mature forest	V-shaped	fines	-	shrubs	mature forest
		2018	V-shaped	fines	cobbles	coniferous forest	mature forest	overhanging bank	fines	gravels	coniferous forest	mature forest
	WQS02	2017	sloping	gravels	fines	coniferous forest	mature forest	V-shaped	gravels	cobbles	coniferous forest	mature forest
Four Creek	WQS03	2018	undercut	fines	cobbles	coniferous forest	mature forest	undercut	fines	cobbles	coniferous forest	mature forest
Goathorn Creek	WQS05	2017	sloping	fines	gravels	mixed forest	mature forest	V-shaped	fines	gravels	coniferous forest	mature forest
Telkwa River	WQS08	2017	V-shaped	fines	gravels	mixed forest	mature forest	V-shaped	gravels	cobbles	mixed forest	mature forest
	WQS09	2017	V-shaped	gravels	cobbles	mixed forest	young forest	V-shaped	gravels	cobbles	mixed forest	young forest
Bulkley River	WQS11B	2017	V-shaped	fines	gravels	shrubs	mature forest	V-shaped	fines	gravels	shrubs	mature forest
	WQS12B	2017	V-shaped	fines	gravels	mixed forest	mature forest	sloping	fines	gravels	deciduous forest	mature forest
Unnamed Tributary	Four Creek Trib	2018	V-shaped	fines	cobbles	coniferous forest	mature forest	undercut	fines	boulders	coniferous forest	mature forest

Stream	Site ID	Year of Measurements	Bed Material				Channel Morphology						
			Dominant	Subdominant	D95 (cm)	D (cm)	Morphology	Pattern	Coupling	Confinement	Feature Type		
Tenas Creek	WQS01	2017	cobbles	gravels	65	50	riffle-pool	irregular wandering	partially coupled	occasionally confined	-		
		2018	cobbles	boulders	62	22	cascade-pool	irregular wandering	partially coupled	occasionally confined	-		
	WQS02	2017	cobbles	boulders	50	40	riffle-pool	irregular wandering	partially coupled	occasionally confined	-		
Four Creek	WQS03	2018	gravels	cobbles	45	13	step-pool	irregular wandering	decoupled	occasionally confined	-		
Goathorn Creek	WQS05	2017	gravels	cobbles	40	30	riffle-pool	irregular wandering	decoupled	unconfined	-		
Telkwa River	WQS08	2017	cobbles	boulders	200	50	riffle-pool	irregular wandering	partially coupled	confined	-		
	WQS09	2017	cobbles	boulders	60	40	riffle-pool	irregular wandering	decoupled	occasionally confined	fisheries sensitive zone		
Bulkley River	WQS11B	2017	gravels	cobbles	100	15	large channel	irregular wandering	decoupled	unconfined	-		
	WQS12B	2017	gravels	cobbles	20	20	large channel	irregular wandering	decoupled	unconfined	fisheries sensitive zone		
Unnamed Tributary	Four Creek Trib	2018	cobbles	gravels	40	22	step-pool	irregular wandering	partially coupled	unconfined	falls		

Notes:
Dash (-) means no data.
Bank Morphology: L. = Left, R. = Right
LWD = large woody debris

Appendix 11-A. Fish Stream Morphology and Habitat Information, Tenas Project, 2017 and 2018

Stream	Site ID	Year of Measurements	Comments
Tenas Creek	WQS01	2017	S: important evidence of resident DV spawning = good gravels; R: good, lots of rearing hab & invert production; O: fair - few areas of slack water pools; M: fair - similar hab upstream
		2018	-
	WQS02	2017	S: v. good, lots of patches of suitable gravels for resident DV & RB; R: v. good - lots of cobble cover & invert production; O: fair, flow not too fast, but limited pools & slack water areas; M: good - more good rearing/spawning habitat noted upstream; Overall: Important
Four Creek	WQS03	2018	S - poor - very few suitable gravels; R - good - lots of cover, LWD; O - fair - few good pools, but WQ sampling confirms it flows all winter
Goathorn Creek	WQS05	2017	S: good - patches of good gravels w/ good flow for salmon and resident fish; R: good - good cover for small fish/good invert production; O: fair - shallow, few pools; M: good - lots of habitat, incl. DV spawning upstream; Overall: Important
Telkwa River	WQS08	2017	S: fair - some small areas w/ suitable gravel/flow; R: good - lots of cobble/boulder cover & invert production; O: fair - few pools or slack water areas; M: good - lots of spawning/rearing hab upstream
	WQS09	2017	S: good - areas w/ very good gravels & flows for salmon; R: good - lots of boulder cover for small fish, few LWD structures; O: good - sufficient flow but few slack water areas; M: good - spawning & rearing habitat upstream; Overall: Critical. Fisheries sensitive zone - back channel rearing habitat for salmon fry
Bulkley River	WQS11B	2017	S: good - lots of patches of suitable gravels (and dead pink salmon along banks); R: fair - not a lot of cover/cobbles for fry; O: fair - not a lot of slack water pools; M: good - major salmon spawning habitat upstream
	WQS12B	2017	S: critical - pink salmon spawning at site, extensive spawning hab; R: good - limited cover for small fish, but extensive back-channel/slough provides important rearing hab; O: good - mainstem is deep enough; M: good - extensive salmon spawning habitat upstream; Overall: Critical
Unnamed Tributary	Four Creek Trib	2018	S - poor - very few gravels, just in pools, poor access; R - fair - some good cover and pools but probably isolated at low flow; O - poor - likely freezes or dries up; O - marginal; Steep stream with good flow, very marginal gradient (14%) near confluence, 20%+ further up; small pools, steps up to ~0.5 m; LWD "falls" at the confluence, ~0.8 m high, barrier to small fish at low flow, but channel ground at high flow would let fish by; flattens out ~50 m upstream of confluence with Four Creek, fewer pools, more gravels

Notes:
Dash (-) means no data.
Bank Morphology: L. = Left, R. = Right
LWD = large woody debris

Appendix 11-B *Electrofishing Specifications and Catch per Unit
Effort (CPUE) for Electrofishing Sampling Efforts,
Tenas Project, 2017 and 2018*

Appendix 11-B. Electrofishing Specifications and Catch per Unit Effort (CPUE) for Electrofishing Sampling Efforts, Tenas Project, 2017 and 2018

Year	Stream	Site ID	Temperature (°C)	Conductivity (µS)	Turbidity (NTU)	EF Seconds	EF Length (m)	EF Width (m)	Enclosure	Voltage (V)	Frequency (Hz)	Species	Stage	Total	CPUE
2017	Tenas Creek	WQS01	2.3	164	clear	860	350	2	Open	400	30	Dolly Varden	juvenile	14	1.63
			2.3	164	clear	860	350	2	Open	400	30	Rainbow Trout	juvenile	9	1.05
		WQS02	2	177	clear	1007	250	2	Open	425	30	Dolly Varden	juvenile	7	0.7
			2	177	clear	1007	250	2	Open	425	30	Rainbow Trout	juvenile	22	2.18
	Goathorn Creek	WQS05	3	187	clear	1035	300	2	Open	450	30	Coho Salmon	fry	2	0.19
			3	187	clear	1035	300	2	Open	450	30	Dolly Varden	juvenile	4	0.39
			3	187	clear	1035	300	2	Open	450	30	Rainbow Trout	juvenile	22	2.13
	Telkwa River	WQS08	2	107	clear	1232	500	2	Open	550	30	Coho Salmon	fry	11	0.89
			2	107	clear	1232	500	2	Open	550	30	Dolly Varden	juvenile	2	0.16
			2	107	clear	1232	500	2	Open	550	30	Mountain Whitefish	juvenile	1	0.08
			2	107	clear	1232	500	2	Open	550	30	Rainbow Trout	juvenile	17	1.38
		WQS09	3	113	clear	830	250	2	Open	550	30	Coho Salmon	fry	2	0.24
			3	113	clear	830	250	2	Open	550	30	Dolly Varden	adult	2	0.24
			3	113	clear	830	250	2	Open	550	30	Mountain Whitefish	juvenile	2	0.24
			3	113	clear	830	250	2	Open	550	30	Rainbow Trout	juvenile	18	2.17
	Bulkley River	WQS11B	8.8	60	clear	684	250	2	Open	700	30	Coho Salmon	fry	12	1.75
			8.8	60	clear	684	250	2	Open	700	30	Lamprey (General)	juvenile	1	0.15
			8.8	60	clear	684	250	2	Open	700	30	Rainbow Trout	juvenile	19	2.78
			8.8	60	clear	684	250	2	Open	700	30	Sucker (General)	juvenile	3	0.44
		WQS12B	8	66	clear	1356	600	2	Open	700	30	Coho Salmon	fry	21	1.55
			8	66	clear	1356	600	2	Open	700	30	Rainbow Trout	juvenile	21	1.55
			8	66	clear	1356	600	2	Open	700	30	Sucker (General)	juvenile	3	0.22
2018	Tenas Creek	WQS01	4.5	129	lightly turbid	1634	300	4	Open	350	30	Dolly Varden	juvenile	34	0.02
			4.5	129	lightly turbid	1634	300	4	Open	350	30	Rainbow Trout	juvenile	6	0.00
		WQS02	6.5	105	moderately turbid	1339	300	2	Open	400	30	Salmon (General)	juvenile	18	0.01
			6.5	105	moderately turbid	1339	300	2	Open	400	30	Rainbow Trout	juvenile	16	0.01
	Four Creek	WQS03	4.8	130	clear	680	150	3	Open	450	30	Dolly Varden	juvenile	6	0.01
	Goathorn Creek	WQS05	-	-	-	1583	200	4	Open	425	30	Rainbow Trout	juvenile	10	0.01
	Telkwa River	WQS09	10.4	104	turbid	1675	300	4	Open	400	30	Salmon (General)	juvenile	6	0.00
			10.4	104	turbid	1675	300	4	Open	400	30	Coho Salmon	juvenile	25	0.01
			10.4	104	turbid	1675	300	4	Open	400	30	Salmon (General)	juvenile	6	0.00
			8.3	63	moderately turbid	1811	300	4	Open	500	30	Rainbow Trout	juvenile	8	0.00
			9.4	97	moderately turbid	-	200	2	Open	500	30	Coho Salmon	juvenile	30	-
			9.4	97	moderately turbid	-	200	2	Open	500	30	Rainbow Trout	juvenile	21	-
	Bulkley River	WQS11B	-	-	-	2017	200	10	Closed	400	40	Coho Salmon	juvenile	9	0.00
			-	-	-	2017	200	10	Closed	400	40	Longnose Sucker	juvenile	8	0.00
			-	-	-	2017	200	10	Closed	400	40	Rainbow Trout	juvenile	36	0.02
			-	-	-	2017	200	10	Closed	400	40	White Sucker	juvenile	3	0.00
			-	-	-	563	50	10	Open	500	30	Chinook Salmon	juvenile	3	0.01
			-	-	-	563	50	10	Open	500	30	Coho Salmon	juvenile	1	0.00
			-	-	-	563	50	10	Open	500	30	Rainbow Trout	juvenile	24	0.04
		WQS12B	-	-	-	2387	400	3	Open	500	30	Bull Trout	juvenile	1	0.00
			-	-	-	2387	400	3	Open	500	30	Chinook Salmon	juvenile	1	0.00
			-	-	-	2387	400	3	Open	500	30	Coho Salmon	juvenile	4	0.00
			-	-	-	2387	400	3	Open	500	30	Lamprey (General)	juvenile	3	0.00
			-	-	-	2387	400	3	Open	500	30	Longnose Sucker	juvenile	11	0.00
			-	-	-	2387	400	3	Open	500	30	Minnow (General)	juvenile	12	0.01
			-	-	-	2387	400	3	Open	500	30	Northern Pikeminnow	juvenile	1	0.00
			-	-	-	2387	400	3	Open	500	30	Rainbow Trout	juvenile	25	0.01
			-	-	-	2387	400	3	Open	500	30	Salmon (General)	juvenile	2	0.00
			-	-	-	2387	400	3	Open	500	30	Sucker (General)	juvenile	1	0.00
			-	-	-	2387	400	3	Open	500	30	White Sucker	juvenile	6	0.00
	Unnamed Tributary	Four Creek Trib	8.4	157	clear	294	50	1.5	Open	300	30	No Fish Caught	-	-	-

Notes:
Dash (-) means no data.
EF = Electrofishing, CPUE = Catch per unit effort

Appendix 11-C *Individual Fish Data Collected during Field
Sampling Efforts, Tenas Project, 2017 and 2018*

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
11-Oct-17	WQS05	Goathorn Creek	EF	1	S05-1	Dolly Varden	-	-	141	28.93	1.03	-	SC+FC	-	-
			EF	1	S05-2	Dolly Varden	-	-	95	7.86	0.92	-	SC+FC	-	-
			EF	1	S05-3	Rainbow Trout	-	-	82	6.34	1.15	-	SC+FC	-	-
			EF	1	S05-4	Rainbow trout	-	-	72	5.3	1.42	-	SC+FC	-	-
			EF	1	S05-5	Rainbow trout	-	-	71	5.3	1.48	-	SC+FC	-	-
			EF	1	S05-6	Rainbow trout	-	-	75	4.73	1.12	-	SC+FC	-	-
			EF	1	S05-7	Rainbow trout	-	-	85	6.13	1.00	-	SC+FC	-	-
			EF	1	-	Coho salmon	-	-	97	9.76	1.07	-	-	-	-
			EF	1	-	Rainbow trout	-	-	41	0.73	1.06	-	-	-	-
			EF	1	-	Dolly Varden	-	-	51	1.01	0.76	-	-	-	-
			EF	1	-	Rainbow trout	-	-	52	1.31	0.93	-	-	-	-
			EF	1	-	Rainbow trout	-	-	45	1.04	1.14	-	-	-	-
			EF	1	-	Coho salmon	-	-	62	2.37	0.99	-	-	-	-
			EF	1	-	Rainbow trout	-	-	48	1.11	1.00	-	-	-	-
			EF	1	-	Rainbow trout	-	-	44	0.99	1.16	-	-	-	-
			EF	1	-	Dolly Varden	-	-	52	1.13	0.80	-	-	-	-
			EF	1	-	Rainbow trout	-	-	49	1.21	1.03	-	-	-	-
			EF	1	-	Rainbow trout	-	-	50	1.13	0.90	-	-	-	-
			EF	1	-	Rainbow trout	-	-	39	0.68	1.15	-	-	-	-
			EF	1	-	Rainbow trout	-	-	45	1.02	1.12	-	-	-	-
			EF	1	S05-8	Rainbow trout	U	IM	99	10.44	1.08	0.09	SC+2 OTO	-	MMER
			EF	1	S05-9	Rainbow trout	U	IM	110	13.38	1.01	0.11	SC+1 OTO	-	MMER
			EF	1	S05-10	Rainbow trout	U	IM	98	8.95	0.95	0.06	SC+2 OTO	-	MMER
			EF	1	S05-11	Rainbow trout	U	IM	116	16.69	1.07	0.15	SC+2 OTO	-	MMER
			EF	1	S05-12	Rainbow trout	U	IM	115	15.86	1.04	0.15	SC+2 OTO	-	MMER
			EF	1	S05-13	Rainbow trout	U	IM	95	11.34	1.32	0.13	SC+2 OTO	-	MMER
			EF	1	S05-14	Rainbow trout	U	IM	82	5.52	1.00	0.07	SC+2 OTO	-	MMER
			EF	1	S05-15	Rainbow trout	U	IM	106	12.17	1.02	0.08	SC+2 OTO	-	MMER
12-Oct-17	WQS01	Tenas Creek	EF	1	S05-01	Dolly Varden	-	-	109	11.65	0.90	-	SC+FC	-	-
			EF	1	S05-02	Dolly Varden	-	-	96	7.54	0.85	-	SC+FC	-	-
			EF	1	-	Dolly Varden	-	-	102	9.92	0.93	-	-	-	-
			EF	1	S05-03	Dolly Varden	-	-	99	9.04	0.93	-	SC+FC	-	-
			EF	1	S05-04	Dolly Varden	-	-	138	25.59	0.97	-	SC+FC	-	-
			EF	1	S05-05	Dolly Varden	-	-	112	12.98	0.92	-	SC+FC	-	-
			EF	1	S05-06	Dolly Varden	-	-	89	6.8	0.96	-	SC+FC	-	-
			EF	1	S05-07	Dolly Varden	-	-	155	32.98	0.89	-	SC+FC	-	-
			EF	1	S05-08	Dolly Varden	-	-	138	21.84	0.83	-	SC+FC	-	-
			EF	1	S05-09	Rainbow Trout	-	-	109	15.88	1.23	-	SC+FC	-	-
			EF	1	S05-10	Dolly Varden	-	-	115	14.02	0.92	-	SC+FC	-	-
			EF	1	-	Dolly Varden	-	-	112	14.35	1.02	-	-	-	-
			EF	1	-	Dolly Varden	-	-	119	14.39	0.85	-	-	-	-
			EF	1	-	Dolly Varden	-	-	90	7.72	1.06	-	-	-	-
			EF	1	-	Dolly Varden	-	-	74	4	0.99	-	-	-	-
			EF	1	S01-11	Rainbow Trout	U	IM	108	12.71	1.01	0.12	SC+2 OTO	-	MMER
			EF	1	S01-12	Rainbow Trout	U	IM	112	13.93	0.99	0.14	SC+2 OTO	-	MMER
			EF	1	S01-13	Rainbow Trout	U	IM	122	16.42	0.90	0.16	SC+2 OTO	-	MMER
			EF	1	S01-14	Rainbow Trout	U	IM	119	17.34	1.03	0.16	SC+2 OTO	-	MMER
			EF	1	S01-15	Rainbow Trout	U	IM	105	13.31	1.15	0.14	SC+2 OTO	-	MMER

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
12-Oct-17 (cont'd)	WQS01 (cont'd)	Tenas Creek (cont'd)	EF	1	S01-16	Rainbow Trout	U	IM	132	24.18	1.05	0.24	SC+2 OTO	-	MMER
			EF	1	S01-17	Rainbow Trout	U	IM	103	9.59	0.88	0.08	SC+2 OTO	-	MMER
			EF	1	S01-18	Rainbow Trout	U	IM	117	17.36	1.08	0.15	SC+2 OTO	-	MMER
	WQS11B	Bulkley River	EF	1	-	Coho salmon	-	-	47	0.9	0.87	-	-	-	-
			EF	1	-	Coho salmon	-	-	53	1.55	1.04	-	-	-	-
			EF	1	-	Rainbow trout	-	-	63	2.66	1.06	-	-	-	-
			EF	1	-	Coho salmon	-	-	83	6.75	1.18	-	-	-	-
			EF	1	S11-1	Rainbow trout	-	-	145	32.59	1.07	-	SC+FC	-	-
			EF	1	S11-2	Rainbow trout	-	-	153	38.7	1.08	-	SC+FC	-	-
			EF	1	S11-3	Rainbow trout	-	-	170	57.25	1.17	-	SC+FC	-	-
			EF	1	S11-4	Sucker (general)	-	-	134	24.91	1.04	-	SC+FC	Sucker	-
			EF	1	S11-5	Rainbow trout	-	-	135	23.85	0.97	-	SC+FC	-	-
			EF	1	S11-6	Rainbow trout	-	-	97	8.68	0.95	-	SC+FC	-	-
			EF	1	S11-7	Rainbow trout	-	-	85	7.56	1.23	-	SC+FC	-	-
			EF	1	S11-8	Rainbow trout	-	-	96	6.13	0.69	-	SC+FC	-	-
			EF	1	S11-9	Sucker (general)	-	-	93	8.64	1.07	-	SC+FC	Sucker	-
			EF	1	-	Coho salmon	-	-	85	6.02	0.98	-	-	-	-
			EF	1	-	Rainbow trout	-	-	50	-	-	-	-	-	-
			EF	1	-	Coho salmon	-	-	57	-	-	-	-	-	-
			EF	1	-	Coho salmon	-	-	65	-	-	-	-	-	-
			EF	1	-	Coho salmon	-	-	53	-	-	-	-	-	-
			EF	1	-	Coho salmon	-	-	52	1.85	1.32	-	-	-	-
			EF	1	-	Coho salmon	-	-	69	2.51	0.76	-	-	-	-
			EF	1	-	Coho salmon	-	-	72	4.63	1.24	-	-	-	-
			EF	1	-	Rainbow trout	-	-	71	-	-	-	-	-	-
			EF	1	-	Coho salmon	-	-	70	-	-	-	-	-	-
			EF	1	-	Coho salmon	-	-	52	-	-	-	-	-	-
			EF	1	-	Sucker (general)	-	-	53	-	-	-	-	Sucker	-
			EF	1	-	Rainbow trout	-	-	68	-	-	-	-	-	-
			EF	1	-	Lamprey (general)	-	-	80	-	-	-	-	rey SP - Unider	-
			EF	1	S11-10	Rainbow trout	U	IM	133	26.43	1.12	0.21	SC+2 OTO	-	MMER
			EF	1	S11-11	Rainbow trout	U	IM	125	26.08	1.34	0.33	SC+2 OTO	-	MMER
			EF	1	S11-12	Rainbow trout	U	IM	124	20.68	1.08	0.19	SC+2 OTO	-	MMER
			EF	1	S11-13	Rainbow trout	U	IM	97	10.83	1.19	0.12	SC+2 OTO	-	MMER
			EF	1	S11-14	Rainbow trout	U	IM	106	13.83	1.16	0.12	SC+2 OTO	-	MMER
			EF	1	S11-15	Rainbow trout	U	IM	99	10.9	1.12	0.1	SC+2 OTO	-	MMER
			EF	1	S11-16	Rainbow trout	U	IM	107	14.69	1.20	0.15	SC+2 OTO	-	MMER
			EF	1	S11-17	Rainbow trout	U	IM	125	22.93	1.17	0.25	SC+2 OTO	-	MMER
13-Oct-17	WQS08	Telkwa River	EF	1	S08-01	Rainbow Trout	-	-	161	47.43	1.14	-	SC+FC	-	-
			EF	1	S08-02	Mountain whitefish	-	-	97	7.18	0.79	-	SC+FC	-	-
			EF	1	S08-03	Dolly Varden	-	-	98	8.68	0.92	-	FC	-	-
			EF	1	-	Coho salmon	-	-	80	5.69	1.11	-	-	-	-
			EF	1	-	Coho salmon	-	-	85	6.88	1.12	-	-	-	-
			EF	1	S08-04	Dolly Varden	-	-	91	6.77	0.90	-	FC	-	-
			EF	1	-	Coho salmon	-	-	55	1.57	0.94	-	-	-	-
			EF	1	-	Coho salmon	-	-	64	3	1.14	-	-	-	-
			EF	1	-	Coho salmon	-	-	59	2.13	1.04	-	-	-	-
			EF	1	-	Coho salmon	-	-	63	2.88	1.15	-	-	-	-

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
13-Oct-17 (cont'd)	WQS08 (cont'd)	Telkwa River (cont'd)	EF	1	-	Rainbow Trout	-	-	45	0.99	1.09	-	-	-	-
			EF	1	-	Coho salmon	-	-	65	3.77	1.37	-	-	-	-
			EF	1	-	Coho salmon	-	-	67	2.89	0.96	-	-	-	-
			EF	1	-	Coho salmon	-	-	76	4.71	1.07	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	68	3.31	1.05	-	-	-	-
			EF	1	-	Coho salmon	-	-	90	7.58	1.04	-	-	-	-
			EF	1	-	Coho salmon	-	-	55	1.84	1.11	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	68	3.54	1.13	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	79	5.42	1.10	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	63	3.38	1.35	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	40	0.64	1.00	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	44	0.84	0.99	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	66	3.31	1.15	-	-	-	-
			MT	-	-	Coho salmon	-	-	-	-	-	-	-	Fry	-
			MT	-	-	Coho salmon	-	-	-	-	-	-	-	Fry	-
			MT	-	-	Rainbow Trout	-	-	-	-	-	-	-	-	-
			MT	-	-	Rainbow Trout	-	-	-	-	-	-	-	-	-
			EF	1	S08-5	Rainbow Trout	U	IM	101	10.69	1.04	0.1	SC+2 OTO	-	MMER
			EF	1	S08-6	Rainbow Trout	U	IM	95	9.03	1.05	0.1	SC+2 OTO	-	MMER
			EF	1	S08-7	Rainbow Trout	U	IM	104	11.72	1.04	0.11	SC+2 OTO	-	MMER
			EF	1	S08-8	Rainbow Trout	U	IM	107	12.88	1.05	0.1	SC+2 OTO	-	MMER
			EF	1	S08-9	Rainbow Trout	U	IM	78	4.74	1.00	0.04	SC+2 OTO	-	MMER
			EF	1	S08-10	Rainbow Trout	U	IM	96	8.79	0.99	0.07	SC+2 OTO	-	MMER
			EF	1	S08-11	Rainbow Trout	U	IM	81	5.18	0.97	0.04	SC+2 OTO	-	MMER
			EF	1	S08-12	Rainbow Trout	U	IM	98	11.44	1.22	0.12	SC+2 OTO	-	MMER
	WQS09	Telkwa River	EF	1	S09-01	Dolly Varden	-	-	171	46.88	0.94	-	SC+FC	-	-
			EF	1	S09-02	Dolly Varden	-	-	160	43.33	1.06	-	SC+FC	-	-
			EF	1	-	Rainbow trout	-	-	75	4.53	1.07	-	-	-	-
			EF	1	-	Coho salmon	-	-	105	11.83	1.02	-	-	-	-
			EF	1	-	Rainbow trout	-	-	66	3.34	1.16	-	-	-	-
			EF	1	-	Rainbow trout	-	-	75	4.35	1.03	-	-	-	-
			EF	1	-	Rainbow trout	-	-	73	4.87	1.25	-	-	-	-
			EF	1	S09-03	Rainbow trout	-	-	77	5.13	1.12	-	SC+FC	-	-
			EF	1	S09-04	Rainbow trout	-	-	80	5.15	1.01	-	SC+FC	-	-
			EF	1	S09-05	Rainbow trout	-	-	76	4.62	1.05	-	SC+FC	-	-
			EF	1	-	Rainbow trout	-	-	67	3.03	1.01	-	-	-	-
			EF	1	-	Rainbow trout	-	-	68	3.16	1.00	-	-	-	-
			EF	1	-	Coho salmon	-	-	52	-	-	-	-	-	-
			EF	1	-	Mountain whitefish	-	-	55	1.34	0.81	-	-	-	-
			EF	1	-	Mountain whitefish	-	-	62	1.82	0.76	-	-	-	-
			EF	1	-	Rainbow trout	-	-	39	0.49	0.83	-	-	-	-
			MT	-	-	Dolly Varden	-	-	-	-	-	-	-	-	-
			MT	-	-	Mountain whitefish	-	-	-	-	-	-	-	-	-
			MT	-	-	Mountain whitefish	-	-	-	-	-	-	-	-	-
			EF	1	S09-6	Rainbow trout	U	IM	106	11.84	0.99	0.1	SC+2 OTO	-	MMER
			EF	1	S09-7	Rainbow trout	U	IM	93	8.4	1.04	0.11	SC+2 OTO	-	MMER
			EF	1	S09-8	Rainbow trout	U	IM	126	18.86	0.94	0.12	SC+2 OTO	-	MMER
			EF	1	S09-9	Rainbow trout	U	IM	101	10.8	1.05	0.1	SC+2 OTO	-	MMER

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
13-Oct-17 (cont'd)	WQS09 (cont'd)	Telkwa River (cont'd)	EF	1	S09-10	Rainbow trout	U	IM	96	9.14	1.03	0.07	SC+2 OTO	-	MMER
			EF	1	S09-11	Rainbow trout	U	IM	85	6.24	1.02	0.05	SC+2 OTO	-	MMER
			EF	1	S09-12	Rainbow trout	U	IM	95	8.78	1.02	0.6	SC+2 OTO	-	MMER
			EF	1	S09-13	Rainbow trout	U	IM	91	8.06	1.07	0.08	SC+2 OTO	-	MMER
14-Oct-17	WQS02	Tenas Creek	EF	1	S02-1	Rainbow Trout	-	-	178	62.25	1.10	-	SC+FC	-	-
			EF	1	S02-2	Rainbow Trout	-	-	142	30.56	1.07	-	SC+FC	-	-
			EF	1	S02-3	Rainbow Trout	-	-	126	21.63	1.08	-	SC+FC	-	-
			EF	1	S02-4	Dolly Varden	-	-	126	18.77	0.94	-	SC+FC	-	-
			EF	1	S02-5	Dolly Varden	-	-	128	19.67	0.94	-	SC+FC	-	-
			EF	1	S02-6	Dolly Varden	-	-	126	17	0.85	-	SC+FC	-	-
			EF	1	S02-7	Dolly Varden	-	-	115	14.88	0.98	-	SC+FC	-	-
			EF	1	S02-8	Rainbow Trout	-	-	86	6.93	1.09	-	SC+FC	-	-
			EF	1	S02-9	Rainbow Trout	-	-	94	8.2	0.99	-	SC+FC	-	-
			EF	1	-	Rainbow Trout	-	-	95	8.35	0.97	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	86	7.25	1.14	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	88	7.76	1.14	-	-	-	-
			EF	1	-	Dolly Varden	-	-	86	6.55	1.03	-	-	-	-
			EF	1	-	Dolly Varden	-	-	77	4.4	0.96	-	-	-	-
			EF	1	-	Dolly Varden	-	-	82	5.9	1.07	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	51	1.2	0.90	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	48	1.05	0.95	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	42	0.77	1.04	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	42	0.92	1.24	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	43	0.91	1.14	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	43	0.87	1.09	-	-	-	-
			EF	1	S02-10	Rainbow Trout	U	IM	108	16.39	1.30	0.17	SC+2 OTO	-	MMER
			EF	1	S02-11	Rainbow Trout	U	IM	81	7.11	1.34	0.08	SC+2 OTO	-	MMER
			EF	1	S02-12	Rainbow Trout	U	IM	105	15.06	1.30	0.15	SC+2 OTO	-	MMER
			EF	1	S02-13	Rainbow Trout	U	IM	88	8.85	1.30	0.1	SC+2 OTO	-	MMER
			EF	1	S02-14	Rainbow Trout	U	IM	105	12.81	1.11	0.13	SC+2 OTO	-	MMER
			EF	1	S02-15	Rainbow Trout	U	IM	113	17.64	1.22	0.18	SC+2 OTO	-	MMER
			EF	1	S02-16	Rainbow Trout	U	IM	98	10.16	1.08	0.12	SC+2 OTO	-	MMER
			EF	1	S02-17	Rainbow Trout	U	IM	121	22.28	1.26	0.23	SC+2 OTO	-	MMER
	WQS12B	Bulkley River	EF	1	-	Rainbow trout	-	-	50	1.39	1.11	-	-	-	-
			EF	1	S12-01	Sucker (general)	-	-	142	33.2	1.16	-	SC+FC	-	-
			EF	1	-	Coho salmon	-	-	88	7.68	1.13	-	-	-	-
			EF	1	S12-02	Rainbow trout	-	-	92	9.19	1.18	-	SC+FC	-	-
			EF	1	-	Rainbow trout	-	-	71	4.07	1.14	-	-	-	-
			EF	1	-	Rainbow trout	-	-	74	4.4	1.09	-	-	-	-
			EF	1	S12-03	Sucker (general)	-	-	101	12.43	1.21	-	SC+FC	-	-
			EF	1	-	Coho salmon	-	-	95	8.38	0.98	-	-	-	-
			EF	1	S12-04	Sucker (general)	-	-	100	12.99	1.30	-	SC+FC	-	-
			EF	1	-	Coho salmon	-	-	75	5.15	1.22	-	-	-	-
			EF	1	-	Coho salmon	-	-	49	1.84	1.56	-	-	-	-
			EF	1	-	Coho salmon	-	-	68	3.11	0.99	-	-	-	-
			EF	1	-	Coho salmon	-	-	59	2.16	1.05	-	-	-	-
			EF	1	S12-05	Rainbow trout	-	-	76	4.91	1.12	-	SC+FC	-	-
			EF	1	-	Rainbow trout	-	-	87	7.16	1.09	-	-	-	-

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
14-Oct-17 (cont'd)	WQS12B (cont'd)	Bulkley River (cont'd)	EF	1	-	Coho salmon	-	-	81	6.21	1.17	-	-	-	-
			EF	1	-	Coho salmon	-	-	74	4.8	1.18	-	-	-	-
			EF	1	-	Rainbow trout	-	-	63	3.4	1.36	-	-	-	-
			EF	1	-	Rainbow trout	-	-	73	5.22	1.34	-	-	-	-
			EF	1	-	Coho salmon	-	-	88	7.3	1.07	-	-	-	-
			EF	1	-	Coho salmon	-	-	72	4.43	1.19	-	-	-	-
			EF	1	-	Rainbow trout	-	-	64	3.39	1.29	-	-	-	-
			EF	1	-	Rainbow trout	-	-	70	3.93	1.15	-	-	-	-
			EF	1	-	Coho salmon	-	-	53	1.96	1.32	-	-	-	-
			EF	1	-	Coho salmon	-	-	75	4.86	1.15	-	-	-	-
			EF	1	-	Coho salmon	-	-	54	1.91	1.21	-	-	-	-
			EF	1	-	Rainbow trout	-	-	68	3.83	1.22	-	-	-	-
			EF	1	-	Rainbow trout	-	-	40	-	-	-	-	-	-
			EF	1	-	Coho salmon	-	-	56	1.94	1.10	-	-	-	-
			EF	1	-	Coho salmon	-	-	54	2.14	1.36	-	-	-	-
			EF	1	-	Coho salmon	-	-	51	1.74	1.31	-	-	-	-
			EF	1	-	Coho salmon	-	-	62	2.49	1.04	-	-	-	-
			EF	1	-	Coho salmon	-	-	60	2.5	1.16	-	-	-	-
			EF	1	-	Coho salmon	-	-	44	-	-	-	-	-	-
			EF	1	-	Coho salmon	-	-	44	-	-	-	-	-	-
			EF	1	-	Coho salmon	-	-	45	-	-	-	-	-	-
			EF	1	-	Rainbow trout	-	-	42	-	-	-	-	-	-
			EF	1	S12-6	Rainbow trout	U	IM	132	23.64	1.03	0.21	SC+2 OTO	-	MMER
			EF	1	S12-7	Rainbow trout	U	IM	82	6.73	1.22	0.06	SC+2 OTO	-	MMER
			EF	1	S12-8	Rainbow trout	U	IM	111	17.17	1.26	0.17	SC+2 OTO	-	MMER
			EF	1	S12-9	Rainbow trout	U	IM	94	8.88	1.07	0.08	SC+2 OTO	-	MMER
			EF	1	S12-10	Rainbow trout	U	IM	71	3.57	1.00	0.02	SC+2 OTO	-	MMER
			EF	1	S12-11	Rainbow trout	U	IM	102	11.9	1.12	0.15	SC+2 OTO	-	MMER
			EF	1	S12-12	Rainbow trout	U	IM	130	24.75	1.13	0.26	SC+2 OTO	-	MMER
			EF	1	S12-13	Rainbow trout	F	IM	151	36.29	1.05	0.37	SC+2 OTO	-	MMER
12-Jun-18	WQS01	Tenas Creek	EF	1	S01-1	Dolly Varden	-	-	82	5	0.91	-	FR	-	-
			EF	1	S01-2	Dolly Varden	-	-	76	4	0.91	-	FR	-	-
			EF	1	S01-3	Dolly Varden	-	-	102	10	0.94	-	FR	-	-
			EF	1	S01-4	Dolly Varden	-	-	100	9	0.90	-	FR	-	-
			EF	1	S01-5	Dolly Varden	-	-	129	16	0.75	-	FR	-	-
			EF	1	S01-6	Dolly Varden	-	-	94	7	0.84	-	FR	-	-
			EF	1	S01-7	Dolly Varden	-	-	124	15	0.79	-	FR	-	-
			EF	1	S01-8	Dolly Varden	-	-	97	9	0.99	-	FR	-	-
			EF	1	S01-9	Dolly Varden	-	-	102	9	0.85	-	FR	-	-
			EF	1	S01-10	Dolly Varden	-	-	105	10	0.86	-	FR	-	-
			EF	1	-	Dolly Varden	-	-	109	11	0.85	-	-	-	-
			EF	1	-	Dolly Varden	-	-	99	8	0.82	-	-	-	-
			EF	1	-	Dolly Varden	-	-	92	6	0.77	-	-	-	-
			EF	1	-	Dolly Varden	-	-	90	7	0.96	-	-	-	-
			EF	1	-	Dolly Varden	-	-	117	15	0.94	-	-	-	-
			EF	1	-	Dolly Varden	-	-	104	10	0.89	-	-	-	-
			EF	1	-	Dolly Varden	-	-	107	10	0.82	-	-	-	-
			EF	1	-	Dolly Varden	-	-	95	9	1.05	-	-	-	-

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
12-Jun-18 (cont'd)	WQS01 (cont'd)	Tenas Creek (cont'd)	EF	1	-	Dolly Varden	-	-	93	7	0.87	-	-	-	-
			EF	1	-	Dolly Varden	-	-	67	3	1.00	-	-	-	-
			EF	1	-	Dolly Varden	-	-	110	12	0.90	-	-	-	-
			EF	1	-	Dolly Varden	-	-	105	10	0.86	-	-	-	-
			EF	1	-	Dolly Varden	-	-	112	12	0.85	-	-	-	-
			EF	1	-	Dolly Varden	-	-	122	17	0.94	-	-	-	-
			EF	1	-	Dolly Varden	-	-	91	6	0.80	-	-	-	-
			EF	1	-	Dolly Varden	-	-	87	7	1.06	-	-	-	-
			EF	1	-	Dolly Varden	-	-	94	8	0.96	-	-	-	-
			EF	1	-	Dolly Varden	-	-	93	9	1.12	-	-	-	-
			EF	1	-	Dolly Varden	-	-	102	9	0.85	-	-	-	-
			EF	1	-	Dolly Varden	-	-	92	7	0.90	-	-	-	-
			EF	1	-	Dolly Varden	-	-	124	14	0.73	-	-	-	-
			EF	1	-	Dolly Varden	-	-	89	6	0.85	-	-	-	-
			EF	1	-	Dolly Varden	-	-	88	6	0.88	-	-	-	-
			EF	1	-	Dolly Varden	-	-	100	9	0.90	-	-	-	-
			EF	1	S01-11	Rainbow Trout	U	IM	129	24.5	1.14	0.28	OTO	-	MMER
			EF	1	S01-12	Rainbow Trout	F	IM	109	14.38	1.11	0.14	OTO	-	MMER
			EF	1	S01-13	Rainbow Trout	U	IM	120	18.61	1.08	0.14	OTO	-	MMER
			EF	1	S01-14	Rainbow Trout	F	IM	104	11.02	0.98	0.11	OTO	-	MMER
			EF	1	S01-15	Rainbow Trout	U	IM	102	12.02	1.13	0.09	OTO	-	MMER
			EF	1	S01-16	Rainbow Trout	F	IM	132	24.3	1.06	0.3	OTO	-	MMER
	WQS03	Four Creek	EF	1	S03-1	Dolly Varden	-	-	82	6	1.09	-	FR	-	-
			EF	1	S03-2	Dolly Varden	-	-	119	19	1.13	-	FR	-	-
			EF	1	S03-3	Dolly Varden	-	-	112	16	1.14	-	FR	-	-
			EF	1	S03-4	Dolly Varden	-	-	81	6	1.13	-	FR	-	-
			EF	1	S03-5	Dolly Varden	-	-	120	23	1.33	-	FR	-	-
			EF	1	S03-6	Dolly Varden	-	-	54	2	1.27	-	FR	-	-
14-Jun-18	WQS11B	Bulkley River	EF	1	S11-2	Chinook Salmon	-	-	109	15.4	1.19	-	SC	-	-
			EF	1	-	Chinook Salmon	-	-	93	8.65	1.08	-	-	-	-
			EF	1	-	Chinook Salmon	-	-	119	17.16	1.02	-	-	-	-
			EF	1	-	Coho Salmon	-	-	45	1.24	1.36	-	-	-	-
			EF	1	-	Coho Salmon	-	-	48	1.37	1.24	-	-	-	-
			EF	1	-	Coho Salmon	-	-	45	1.03	1.13	-	-	-	-
			EF	1	-	Coho Salmon	-	-	48	1.26	1.14	-	-	-	-
			EF	1	-	Coho Salmon	-	-	41	0.76	1.10	-	-	-	-
			EF	1	-	Coho Salmon	-	-	39	0.31	0.52	-	-	-	-
			EF	1	-	Coho Salmon	-	-	47	1.16	1.12	-	-	-	-
			EF	1	-	Coho Salmon	-	-	44	0.83	0.97	-	-	-	-
			EF	1	-	Coho Salmon	-	-	45	0.89	0.98	-	-	-	-
			EF	1	-	Coho Salmon	-	-	49	1.47	1.25	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	43	0.86	1.08	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	98	10.65	1.13	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	42	0.75	1.01	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	34	0.45	1.14	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	39	0.54	0.91	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	41	0.63	0.91	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	43	0.72	0.91	-	-	-	-

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
14-Jun-18 (cont'd)	WQS11B (cont'd)	Bulkley River (cont'd)	EF	1	-	Longnose Sucker	-	-	59	2.17	1.06	-	-	-	-
			EF	1	S11-1	Rainbow Trout	-	-	63	2.74	1.10	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	59	2.28	1.11	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	49	1.26	1.07	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	47	0.86	0.83	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	63	2.34	0.94	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	64	3.51	1.34	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	45	0.87	0.95	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	53	0.94	0.63	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	66	4.03	1.40	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	68	3.32	1.06	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	44	0.93	1.09	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	51	1.53	1.15	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	50	1.31	1.05	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	54	1.36	0.86	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	51	1.33	1.00	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	48	1.28	1.16	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	53	1.69	1.14	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	45	0.92	1.01	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	64	1.68	0.64	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	38	0.45	0.82	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	58	2.28	1.17	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	71	4.04	1.13	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	51	1.41	1.06	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	53	1.49	1.00	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	55	2.18	1.31	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	44	0.65	0.76	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	46	1.22	1.25	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	42	0.61	0.82	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	40	0.43	0.67	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	39	0.51	0.86	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	45	0.83	0.91	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	45	0.96	1.05	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	36	0.24	0.51	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	40	0.66	1.03	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	41	0.66	0.96	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	49	1.36	1.16	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	84	7.3	1.23	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	82	6.16	1.12	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	42	0.76	1.03	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	46	0.53	0.54	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	60	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	36	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	42	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	39	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	39	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	45	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	46	-	-	-	-	-	-

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
14-Jun-18 (cont'd)	WQS11B (cont'd)	Bulkley River (cont'd)	EF	1	-	Rainbow Trout	-	-	37	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	38	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	45	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	41	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	52	-	-	-	-	-	-
			EF	1	S11-3	Rainbow Trout	U	IM	95	8.78	1.02	0.16	OTO	-	MMER
			EF	1	S11-4	Rainbow Trout	F	IM	99	10.58	1.09	0.13	OTO	-	MMER
			EF	1	S11-5	Rainbow Trout	F	IM	106	13.47	1.13	0.21	OTO	-	MMER
			EF	1	S11-6	Rainbow Trout	U	IM	103	12.85	1.18	0.16	OTO	-	MMER
			EF	1	S11-7	Rainbow Trout	U	IM	106	13.96	1.17	0.18	OTO	-	MMER
			EF	1	S11-8	Rainbow Trout	U	IM	113	11.6	0.80	0.25	OTO	-	MMER
			EF	1	S11-9	Rainbow Trout	U	IM	91	9.05	1.20	0.11	OTO	-	MMER
			EF	1	S11-10	Rainbow Trout	F	IM	153	34.3	0.96	0.34	OTO	-	MMER
			EF	1	-	White Sucker	-	-	125	22.54	1.15	-	-	-	-
			EF	1	-	White Sucker	-	-	124	20.46	1.07	-	-	-	-
			EF	1	-	White Sucker	-	-	114	16.17	1.09	-	-	-	-
15-Jun-18	WQS05	Goathorn Creek	EF	1	-	Dolly Varden	-	-	59	1.84	0.90	-	-	-	-
			EF	1	-	Dolly Varden	-	-	51	1.54	1.16	-	-	-	-
			EF	1	-	Dolly Varden	-	-	90	9.55	1.31	-	-	-	-
			EF	1	-	Dolly Varden	-	-	92	8.82	1.13	-	-	-	-
			EF	1	S05-1	Dolly Varden	-	-	120	16.34	0.95	-	FR	-	-
			EF	1	S05-2	Dolly Varden	-	-	117	15.75	0.98	-	FR	-	-
			EF	1	-	Rainbow Trout	-	-	47	1.05	1.01	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	75	4.73	1.12	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	45	0.82	0.90	-	-	-	-
			EF	1	S05-3	Rainbow Trout	U	IM	117	21.81	1.36	0.21	2 OTO	-	MMER
			EF	1	S05-4	Rainbow Trout	F	IM	138	26.83	1.02	0.25	2 OTO	-	MMER
			EF	1	S05-5	Rainbow Trout	F	IM	128	24.72	1.18	0.3	2 OTO	-	MMER
			EF	1	S05-6	Rainbow Trout	U	IM	122	19.82	1.09	0.22	2 OTO	-	MMER
			EF	1	S05-7	Rainbow Trout	F	IM	99	11.76	1.21	0.16	2 OTO	-	MMER
			EF	1	S05-8	Rainbow Trout	F	IM	98	11.85	1.26	0.17	2 OTO	-	MMER
			EF	1	S05-9	Rainbow Trout	U	IM	95	7.72	0.90	0.12	1 OTO	-	MMER
	WQS12B	Bulkley River	EF	1	-	Minnow (general)	-	-	62	3	1.26	-	-	-	-
			EF	1	-	Minnow (general)	-	-	65	3.39	1.23	-	-	-	-
			EF	1	-	Minnow (general)	-	-	99	11.36	1.17	-	-	-	-
			EF	1	-	Minnow (general)	-	-	67	3.83	1.27	-	-	-	-
			EF	1	-	Minnow (general)	-	-	63	3.44	1.38	-	-	-	-
			EF	1	-	Minnow (general)	-	-	63	3.55	1.42	-	-	-	-
			EF	1	-	Minnow (general)	-	-	87	8.76	1.33	-	-	-	-
			EF	1	-	Minnow (general)	-	-	73	5	1.29	-	-	-	-
			EF	1	-	Minnow (general)	-	-	77	5.62	1.23	-	-	-	-
			EF	1	-	Minnow (general)	-	-	74	5.12	1.26	-	-	-	-
			EF	1	-	Minnow (general)	-	-	80	6.21	1.21	-	-	-	-
			EF	1	-	Minnow (general)	-	-	35	-	-	-	-	-	-
			EF	1	-	Chinook Salmon	-	-	45	1.05	1.15	-	-	-	-
			EF	1	-	Coho Salmon	-	-	50	1.39	1.11	-	-	-	-
			EF	1	-	Coho Salmon	-	-	42	0.77	1.04	-	-	-	-
			EF	1	-	Coho Salmon	-	-	43	0.81	1.02	-	-	-	-

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
15-Jun-18 (cont'd)	WQS12B (cont'd)	Bulkley River (cont'd)	EF	1	-	Coho Salmon	-	-	47	1.18	1.14	-	-	-	-
			EF	1	-	Dolly Varden	-	-	142	27.23	0.95	-	-	-	-
			EF	1	-	Dolly Varden	-	-	49	1.46	1.24	-	-	-	-
			EF	1	-	Dolly Varden	-	-	85	5.72	0.93	-	-	-	-
			EF	1	-	Lamprey (general)	-	-	128	3.89	0.19	-	-	-	-
			EF	1	-	Lamprey (general)	-	-	122	4.33	0.24	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	41	0.84	1.22	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	68	2.31	0.73	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	68	3.43	1.09	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	70	-	-	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	44	0.79	0.93	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	76	5.13	1.17	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	50	1.04	0.83	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	53	1.51	1.01	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	37	0.62	1.22	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	45	0.73	0.80	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	53	1.45	0.97	-	-	-	-
			EF	1	-	Longnose Sucker	-	-	27	-	-	-	-	-	-
			EF	1	S12-1	Northern Pikeminnow	-	-	143	31.73	1.09	-	FR	-	-
			EF	1	-	Rainbow Trout	-	-	45	1.03	1.13	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	53	1.43	0.96	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	72	4.84	1.30	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	38	0.53	0.97	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	55	2.02	1.21	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	63	2.76	1.10	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	35	0.35	0.82	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	54	1.71	1.09	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	44	0.88	1.03	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	59	2.6	1.27	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	55	1.72	1.03	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	75	5.33	1.26	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	60	2.27	1.05	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	40	0.53	0.83	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	51	1.51	1.14	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	50	1.49	1.19	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	45	1.11	1.22	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	61	1.48	0.65	-	-	-	-
			EF	1	S12-2	Rainbow Trout	U	IM	133	26.22	1.11	0.3	2 OTO	-	MMER
			EF	1	S12-3	Rainbow Trout	F	IM	117	20.93	1.31	0.25	2 OTO	-	MMER
			EF	1	S12-4	Rainbow Trout	U	IM	101	13.59	1.32	0.16	2 OTO	-	MMER
			EF	1	S12-5	Rainbow Trout	F	IM	109	16.5	1.27	0.22	2 OTO	-	MMER
			EF	1	S12-6	Rainbow Trout	F	IM	93	10.09	1.25	0.12	2 OTO	-	MMER
			EF	1	S12-7	Rainbow Trout	U	IM	101	12.98	1.26	0.16	2 OTO	-	MMER
			EF	1	S12-8	Rainbow Trout	U	IM	88	8.41	1.23	0.08	2 OTO	-	MMER
			EF	1	S12-9	Rainbow Trout	U	IM	85	8.1	1.32	0.11	2 OTO	-	MMER
			EF	1	-	Sucker (general)	-	-	25	-	-	-	-	-	-
			EF	1	-	White Sucker	-	-	150	33.14	0.98	-	-	-	-
			EF	1	-	White Sucker	-	-	141	33.59	1.20	-	-	-	-

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
15-Jun-18 (cont'd)	WQS12B (cont'd)	Bulkley River (cont'd)	EF	1	-	White Sucker	-	-	61	2.92	1.29	-	-	-	-
			EF	1	-	White Sucker	-	-	98	9.95	1.06	-	-	-	-
			EF	1	-	White Sucker	-	-	60	2.72	1.26	-	-	-	-
			EF	1	-	White Sucker	-	-	53	1.86	1.25	-	-	-	-
			EF	1	-	White Sucker	-	-	63	3.05	1.22	-	-	-	-
			EF	1	-	White Sucker	-	-	48	1.3	1.18	-	-	-	-
			EF	1	-	White Sucker	-	-	84	6.98	1.18	-	-	-	-
18-Jun-18	WQS09	Telkwa River	EF	1	-	Coho Salmon	-	-	44	1.01	1.19	-	-	-	-
			EF	1	-	Coho Salmon	-	-	58	1.6	0.82	-	-	-	-
			EF	1	-	Coho Salmon	-	-	39	0.59	0.99	-	-	-	-
			EF	1	-	Coho Salmon	-	-	57	2	1.08	-	-	-	-
			EF	1	-	Coho Salmon	-	-	66	2.48	0.86	-	-	-	-
			EF	1	-	Coho Salmon	-	-	42	0.77	1.04	-	-	-	-
			EF	1	-	Coho Salmon	-	-	36	-	-	-	-	-	-
			EF	1	-	Coho Salmon	-	-	39	0.66	1.11	-	-	-	-
			EF	1	-	Coho Salmon	-	-	36	0.42	0.90	-	-	-	-
			EF	1	-	Coho Salmon	-	-	58	1.94	0.99	-	-	-	-
			EF	1	-	Coho Salmon	-	-	70	3.2	0.93	-	-	-	-
			EF	1	-	Coho Salmon	-	-	65	2.94	1.07	-	-	-	-
			EF	1	-	Coho Salmon	-	-	40	0.64	1.00	-	-	-	-
			EF	1	-	Coho Salmon	-	-	65	2.98	1.09	-	-	-	-
			EF	1	-	Coho Salmon	-	-	44	0.84	0.99	-	-	-	-
			EF	1	-	Coho Salmon	-	-	35	0.43	1.00	-	-	-	-
			EF	1	-	Coho Salmon	-	-	32	-	-	-	-	-	-
			EF	1	-	Coho Salmon	-	-	72	3.96	1.06	-	-	-	-
			EF	1	-	Coho Salmon	-	-	59	-	-	-	-	-	-
			EF	1	-	Coho Salmon	-	-	51	-	-	-	-	-	-
			EF	1	-	Coho Salmon	-	-	61	-	-	-	-	-	-
			EF	1	-	Coho Salmon	-	-	65	-	-	-	-	-	-
			EF	1	-	Coho Salmon	-	-	55	-	-	-	-	-	-
			EF	1	-	Coho Salmon	-	-	51	-	-	-	-	-	-
			EF	1	-	Dolly Varden	-	-	72	3.17	0.85	-	-	-	-
			EF	1	-	Dolly Varden	-	-	52	1.36	0.97	-	-	-	-
			EF	1	-	Dolly Varden	-	-	133	28.66	1.22	-	-	-	-
			EF	1	-	Dolly Varden	-	-	112	16.12	1.15	-	-	-	-
			EF	1	-	Dolly Varden	-	-	126	20.34	1.02	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	42	0.76	1.03	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	44	0.91	1.07	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	47	1	0.96	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	54	1.52	0.97	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	55	2.04	1.23	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	46	-	-	-	-	-	-
			EF	1	S09-1	Rainbow Trout	U	IM	89	7.42	1.05	0.07	OTO	-	MMER
			EF	1	-	Rainbow Trout	-	-	51	1.48	1.12	-	-	-	-
	WQS09	Tenas Creek	EF	1	-	Coho Salmon	-	-	78	5.5	1.16	-	-	-	-
			EF	1	-	Dolly Varden	-	-	66	2.48	0.86	-	-	-	-
19-Jun-18	WQS02	Tenas Creek	EF	1	-	Dolly Varden	-	-	88	6.96	1.02	-	-	-	-
			EF	1	-	Dolly Varden	-	-	99	9.86	1.02	-	-	-	-

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
19-Jun-18 (cont'd)	WQS02 (cont'd)	Tenas Creek (cont'd)	EF	1	-	Dolly Varden	-	-	55	1.7	1.02	-	-	-	-
			EF	1	-	Dolly Varden	-	-	102	7.58	0.71	-	-	-	-
			EF	1	-	Dolly Varden	-	-	106	10.27	0.86	-	-	-	-
			EF	1	-	Dolly Varden	-	-	83	5.34	0.93	-	-	-	-
			EF	1	-	Dolly Varden	-	-	98	8.74	0.93	-	-	-	-
			EF	1	-	Dolly Varden	-	-	91	4.75	0.63	-	-	-	-
			EF	1	-	Dolly Varden	-	-	113	14.87	1.03	-	-	-	-
			EF	1	-	Dolly Varden	-	-	103	8.71	0.80	-	-	-	-
			EF	1	-	Dolly Varden	-	-	89	8.31	1.18	-	-	-	-
			EF	1	-	Dolly Varden	-	-	64	2.78	1.06	-	-	-	-
			EF	1	-	Dolly Varden	-	-	103	11.45	1.05	-	-	-	-
			EF	1	-	Dolly Varden	-	-	87	7.34	1.11	-	-	-	-
			EF	1	-	Dolly Varden	-	-	86	6.04	0.95	-	-	-	-
			EF	1	-	Dolly Varden	-	-	119	17.18	1.02	-	-	-	-
			EF	1	-	Dolly Varden	-	-	58	1.73	0.89	-	-	-	-
			EF	1	-	Dolly Varden	-	-	54	1.61	1.02	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	48	1.21	1.09	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	39	0.47	0.79	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	78	5.64	1.19	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	73	4.85	1.25	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	51	1.47	1.11	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	48	0.98	0.89	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	81	6.35	1.19	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	81	6.43	1.21	-	-	-	-
			EF	1	S02-1	Rainbow Trout	U	IM	140	29.16	1.06	0.4	2 OTO	-	MMER
			EF	1	S02-2	Rainbow Trout	F	IM	109	15.26	1.18	0.26	2 OTO	-	MMER
			EF	1	S02-3	Rainbow Trout	U	IM	102	12.16	1.15	0.15	2 OTO	-	MMER
			EF	1	S02-4	Rainbow Trout	F	IM	109	14.38	1.11	0.19	1 OTO	-	MMER
			EF	1	S02-5	Rainbow Trout	F	IM	95	10.86	1.27	0.11	2 OTO	-	MMER
			EF	1	S02-6	Rainbow Trout	U	IM	100	12.9	1.29	0.16	2 OTO	-	MMER
			EF	1	S02-7	Rainbow Trout	U	IM	91	8.82	1.17	0.09	2 OTO	-	MMER
			EF	1	S02-8	Rainbow Trout	U	IM	87	7.78	1.18	0.09	1 OTO	-	MMER
20-Jun-18	WQS09	Telkwa River	EF	1	-	Coho Salmon	-	-	30	0.23	0.85	-	-	-	-
			EF	1	-	Coho Salmon	-	-	35	0.4	0.93	-	-	-	-
			EF	1	-	Coho Salmon	-	-	36	0.45	0.96	-	-	-	-
			EF	1	-	Coho Salmon	-	-	53	1.08	0.73	-	-	-	-
			EF	1	-	Coho Salmon	-	-	36	0.49	1.05	-	-	-	-
			EF	1	-	Coho Salmon	-	-	59	0.59	0.29	-	-	-	-
			EF	1	-	Coho Salmon	-	-	49	1.26	1.07	-	-	-	-
			EF	1	-	Coho Salmon	-	-	31	0.21	0.70	-	-	-	-
			EF	1	-	Coho Salmon	-	-	36	0.55	1.18	-	-	-	-
			EF	1	-	Coho Salmon	-	-	40	0.62	0.97	-	-	-	-
			EF	1	-	Coho Salmon	-	-	37	0.54	1.07	-	-	-	-
			EF	1	-	Coho Salmon	-	-	36	0.46	0.99	-	-	-	-
			EF	1	-	Coho Salmon	-	-	57	2.3	1.24	-	-	-	-
			EF	1	-	Coho Salmon	-	-	35	0.59	1.38	-	-	-	-
			EF	1	-	Coho Salmon	-	-	63	3.29	1.32	-	-	-	-
			EF	1	-	Coho Salmon	-	-	47	1.35	1.30	-	-	-	-

Appendix 11-C. Individual Fish Data Collected during Field Sampling Efforts, Tenas Project, 2017 and 2018

Date	Site	Waterbody	Sample Method	H/P#	Sample ID	Species	Sex	Maturity	Fork Length (mm)	Total Weight (g)	Condition	Liver Weight (g)	Aging Structure	DELTs/ Comments	Sampling Program
20-Jun-18 (cont'd)	WQS09 (cont'd)	Telkwa River (cont'd)	EF	1	-	Coho Salmon	-	-	64	3.36	1.28	-	-	-	-
			EF	1	-	Coho Salmon	-	-	42	0.9	1.21	-	-	-	-
			EF	1	-	Coho Salmon	-	-	34	0.37	0.94	-	-	-	-
			EF	1	-	Coho Salmon	-	-	92	12.47	1.60	-	-	-	-
			EF	1	-	Coho Salmon	-	-	32	0.37	1.13	-	-	-	-
			EF	1	-	Coho Salmon	-	-	67	4.17	1.39	-	-	-	-
			EF	1	-	Coho Salmon	-	-	60	2.45	1.13	-	-	-	-
			EF	1	-	Coho Salmon	-	-	65	3.15	1.15	-	-	-	-
			EF	1	-	Coho Salmon	-	-	79	5.94	1.20	-	-	-	-
			EF	1	-	Coho Salmon	-	-	62	3.5	1.47	-	-	-	-
			EF	1	-	Coho Salmon	-	-	30	0.2	0.74	-	-	-	-
			EF	1	-	Coho Salmon	-	-	69	4	1.22	-	-	-	-
			EF	1	-	Coho Salmon	-	-	56	2.32	1.32	-	-	-	-
			EF	1	-	Coho Salmon	-	-	70	4.47	1.30	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	50	1.2	0.96	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	45	0.82	0.90	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	51	1.67	1.26	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	50	-	-	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	54	1.59	1.01	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	54	1.87	1.19	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	61	2.42	1.07	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	51	1.29	0.97	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	63	2.64	1.06	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	50	1.13	0.90	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	43	0.83	1.04	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	43	1.77	2.23	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	71	3.88	1.08	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	47	1.5	1.44	-	-	-	-
			EF	1	-	Rainbow Trout	-	-	62	2.68	1.12	-	-	-	-
			EF	1	S09-2	Rainbow Trout	U	IM	131	24.1	1.07	0.21	2 OTO	-	MMER
			EF	1	S09-3	Rainbow Trout	U	IM	107	14.94	1.22	0.18	2 OTO	-	MMER
			EF	1	S09-4	Rainbow Trout	U	IM	99	12.04	1.24	0.12	2 OTO	-	MMER
			EF	1	S09-5	Rainbow Trout	F	IM	107	13.93	1.14	0.15	2 OTO	-	MMER
			EF	1	S09-6	Rainbow Trout	U	IM	97	9.51	1.04	0.09	2 OTO	-	MMER
			EF	1	S09-7	Rainbow Trout	U	IM	83	7.79	1.36	0.09	2 OTO	-	MMER

Notes:
Sample Method: EF = Electrofishing, MT = Minnow Trap
H/P# = Haul/Pass Number
Sex: M = Male, F = Female, U = Undetermined
Maturity: M = Mature, IM = Immature
Aging Structure: FR = Fin Ray, SC = Scale, OTO = Otolith
Sampling Program: MMER = Metal Mining Effluent Regulations
Dash (-) means no data.

Appendix 11-D *Tissue Metals Analysis and Quality Assurance
Quality Control Results, 2017*

**SOLD TO:**

ERM Consultants Canada Ltd.
ATTN: Accounts Payable
1500-1111 West Hastings Street
Vancouver BC V6E 2J3

REPORTED TO:

RES100

ERM Consultants Canada Ltd.
ATTN: Genevieve Morinville
Richmond Adelaide Centre
120 Adelaide St. W., Suite 2010
Toronto ON M5H 1T1
JOB #: 0403488-0008
Quote #: Q64799

Date	Account #	Terms	Due Date	PO Number/Reference
31-Jan-2018	RES100	Net 30 Days	02-Mar-2018	Not Submitted

Matrix	Analysis	Description	Surcharge Qty	Unit Price	Total Price
Misc.	SAMPLE-DISPOSAL-VA	Sample Handling and Disposal Fee	56	\$1.75	\$98.00
Tissue	AG-WET-CCMS-N-VA	Silver in Tissue by CRC ICPMS (WET)	7	\$32.50	\$227.50
Tissue	AG-WET-MICR-HRMS-VA	Silver in Tissue by HR-ICPMS Micro (WET)	49	\$45.50	\$2,229.50
Tissue	HG-WET-CVAFS-N-VA	Mercury in Tissue by CVAFS (WET)	7	\$13.00	\$91.00
Tissue	HG-WET-MICR-CVAF-VA	Mercury in Tissue by CVAFS Micro (WET)	49	\$13.00	\$637.00
Tissue	MET-WET-CCMS-N-VA	Metals in Tissue by CRC ICPMS (WET)	7	\$107.25	\$750.75
Tissue	MET-WET-MICR-HRMS-VA	Metals in Tissue by HR-ICPMS Micro (WET)	49	\$113.75	\$5,573.75
Tissue	MOISTURE-MICR-VA	Moisture in Tissue	49	\$3.25	\$159.25
Tissue	MOISTURE-TISS-VA	% Moisture in Tissues	7	\$3.25	\$22.75
Tissue	PREP-MICR-DIGEST-VA	Tissue/Vegetation Micro Preparation	49	\$32.50	\$1,592.50
Tissue	PREP-TISS-DIGEST-VA	Tissue/Vegetation Sample Preparation	7	\$13.00	\$91.00

ALS Work Order Numbers and Receive Dates:

L2019410 07-NOV-2017

GST/HST BN 100938885

Sub-total: \$11,473.00

GST (5%): \$573.65

Total (CAD): \$12,046.65

PRICES REFLECT DISCOUNT

Contact Information:

Amber Springer, B.Sc
 Phone #: (604) 253-4188
 Fax #: (604) 253-6700
 VANCOUVER

Please remit payment to **ALS Canada Ltd.** at the address below. We accept Visa and Mastercard.

ADDRESS: 2103 Dollarton Hwy. North Vancouver BC V7H 0A7 Canada

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Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Sample Receipt Confirmation

Report Distribution:

Company Name: ERM Consultants Canada Ltd.
Contact: Genevieve Morinville
Address: 1500-1111 West Hastings Street,
Vancouver, BC, V6E 2J3
Phone: 604-689-9460
Fax: 604-687-4277
Email: genevieve.morinville@erm.com
korina.houghton@erm.com
kathy.chambers@erm.com
EDD Email: genevieve.morinville@erm.com
korina.houghton@erm.com
kathy.chambers@erm.com

Distribution: Hard Copy: Y Email: Y Fax: N EDD: N

Invoice Distribution:

Acct Name: ERM Consultants Canada Ltd.
Contact: Accounts Payable
Address: 1500-1111 West Hastings Street,
Vancouver, BC, V6E 2J3
Phone: 604-689-9460
Fax: --
Invoice Email: erm.canadapayables@erm.com
Project #: N/A
Account #: RES100

Client Information:

Job Reference #: 0403488-0008
Project PO #:
Legal Site Description: N/A
Quote #: N/A

Date Sampled: 11-OCT-17
Date Received: 07-NOV-17
Sampled By: Glen Keddie
Chain Of Custody: 1, 2, 3, 4, 5

Workorder Summary:

Lab Work Order #: L2019410
Estimated completion date:
56 Samples received at ALS in VANCOUVER

Client Job #: 0403488-0008
Account Manager: Amber Springer, B.Sc
Estimated sample disposal date: See Sample Disposal Information section below.

Lab Sample ID	Client Sample ID	Date Sampled	Date Received	Sample Due Date	Priority Flag	Sample Type
L2019410-1	505-8	11-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-2	505-9	11-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-3	505-10	11-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-4	505-11	11-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-5	505-12	11-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-6	505-13	11-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-7	505-14	11-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-8	505-15	11-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-9	501-11	11-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-10	501-12	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-11	501-13	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-12	501-14	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-13	501-15	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-14	501-16	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-15	501-17	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-16	501-18	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-17	511-10	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-18	511-11	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-19	511-12	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-20	511-13	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-21	511-14	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-22	511-15	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-23	511-16	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-24	511-17	12-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-25	508-5	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-26	508-6	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-27	508-7	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-28	508-8	13-OCT-17 00:00	07-NOV-17 22:49			Tissue

ADDRESS 8081 Lougheed Highway, Burnaby, BC, Canada V5A 1W9 | PHONE +1 604 253 4188 | FAX +1 604 253 6700

ALS CANADA LTD. Part of the ALS Group A Campbell Brothers Limited Company



Lab Sample ID	Client Sample ID	Date Sampled	Date Received	Sample Due Date	Priority Flag	Sample Type
L2019410-29	508-9	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-30	508-10	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-31	508-11	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-32	508-12	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-33	509-6	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-34	509-7	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-35	509-8	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-36	509-9	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-37	509-10	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-38	509-11	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-39	509-12	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-40	509-13	13-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-41	502-10	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-42	502-11	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-43	502-12	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-44	502-13	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-45	502-14	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-46	502-15	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-47	502-16	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-48	502-17	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-49	512-6	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-50	512-7	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-51	512-8	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-52	512-9	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-53	512-10	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-54	512-11	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-55	512-12	14-OCT-17 00:00	07-NOV-17 22:49			Tissue
L2019410-56	512-13	14-OCT-17 00:00	07-NOV-17 22:49			Tissue



**Analysis
Requested :**

Hold	Sample Handling and Disposal Fee

505-8	☒	☒
505-9	☒	☒
505-10	☒	☒
505-11	☒	☒
505-12	☒	☒
505-13	☒	☒
505-14	☒	☒
505-15	☒	☒
501-11	☒	☒
501-12	☒	☒
501-13	☒	☒
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511-14	☒	☒
511-15	☒	☒
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511-17	☒	☒
508-5	☒	☒
508-6	☒	☒
508-7	☒	☒
508-8	☒	☒
508-9	☒	☒
508-10	☒	☒



**Analysis
Requested :**

Hold	Sample Handling and Disposal Fee

508-11	☒	☒
508-12	☒	☒
509-6	☒	☒
509-7	☒	☒
509-8	☒	☒
509-9	☒	☒
509-10	☒	☒
509-11	☒	☒
509-12	☒	☒
509-13	☒	☒
502-10	☒	☒
502-11	☒	☒
502-12	☒	☒
502-13	☒	☒
502-14	☒	☒
502-15	☒	☒
502-16	☒	☒
502-17	☒	☒
512-6	☒	☒
512-7	☒	☒
512-8	☒	☒
512-9	☒	☒
512-10	☒	☒
512-11	☒	☒
512-12	☒	☒
512-13	☒	☒

Sample Integrity Observations: No observations were identified for this work order submission.



Sample Disposal Information:

Where possible, ALS will store samples for the following durations, measured from date of sample submission: 45 days for Soil and Water samples; 6 months for Tissue/Biota samples; 14 days for air samples collected on re-usable media; and 3 days for water samples submitted for microbiological testing. Longer storage times are available upon request.

For information about ALS accreditations and certifications please contact your Account Manager or visit our webpage at www.alsglobal.com (see Canada downloads).

ALS Group strives to deliver on-time results to our clients at all times. However, there are times when due to capacity issues or other unforeseen circumstances we are unable to meet our expected turnaround times. The information above is related to a recent workorder you have submitted to our laboratory. In the event that you have an inquiry, please refer to the Lab Work Order # when calling your Account Manager.

ALS Group appreciates your business. Thank you for the opportunity to work with you.

Report Format / Distribution				Service Requested (Rush for routine analysis subject to availability)							
☒ Standard ☐ Other ☒ PDF ☒ Excel ☒ Digital ☐ Other				☒ Regular (Standard Turnaround Times - Business Days) ☐ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT ☐ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT ☐ Same Day or Weekend Emergency - Contact ALS to Confirm TAT							
Name: Marina Morinville Address: 60 Adelaide St. W. Suite 2010; Toronto, ON M5H 1A7 Phone: 416-928-8899 Fax: 416-928-8890 Email 1: mmorin@erm.com Email 2: kchambers@erm.com Email 3: kathy.chambers@erm.com											
Client / Project Information Job #: 0403488-0008 PO / A/E: Quote #: ALS Contact: Amber Springer Sampler:											
Sample Identification (This description will appear on the report)				Analysis Request Please indicate below Filtered, Preserved or both (F, P, F/P)							
Date (dd-mm-yy): 14 OCT Time (hh:mm): Sample Type: Tissue				Percent Moisture: X Standard CCMS Metals: X Mercury: X Silver: X							
12-6 12-7 12-8 12-9 12-10 12-11 12-12 12-13				Tissue X X X X Tissue X X X X Tissue X X X X Tissue X X X X Tissue X X X X Tissue X X X X Tissue X X X X Tissue X X X X Tissue X X X X Tissue X X X X Tissue X X X X Tissue X X X X							
Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc.) / Hazardous Details				KEEP FROZEN. HOLD FOR ANALYSIS UNTIL FURTHER INSTRUCTIONS RECEIVED Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab. Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.							
SHIPMENT RECEPTION (lab use only) Received by: TP Date: Nov 7 Time: 22:50 Temperature: 1 °C				SHIPMENT VERIFICATION (lab use only) Verified by: Date: Time: Observations: Yes / No? If Yes add SIF							

GENF 18.01 Front



L2019410-COFC

Environmental

Page 4 of 5

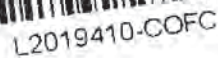
Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)	
☒ Standard ☐ Other ☒ PDF ☒ Excel ☐ Digital		☒ Regular (Standard Turnaround Times - Business Days) ☐ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT ☐ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT ☐ Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
Genevieve Morinville 10 Adelaide St. W. Suite 2010, Toronto, ON 7-288-89 Fax:		Email 1: genevieve.morinville@erm.com Email 2: korrina.houghton@erm.com Email 3: kathy.chambers@erm.com	
Client / Project Information Job #: 0403488-0008 PO / AFE:		Analysis Request Please indicate below Filtered, Preserved or both (F, P, FIP)	
Counts Payables (ERM.CanadaPayables@alsnlab.com) 11th Floor, 1111 W. Hastings St., Vancouver, BC 604-689-9878 Fax:		Quote #: ALS Contact: Amber Springer Sampler:	
Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type
09-10	13 Oct		Tissue
09-11			Tissue
09-12			Tissue
09-13			Tissue
02-10	14 Oct		Tissue
02-11			Tissue
02-12			Tissue
02-13			Tissue
02-14			Tissue
02-15			Tissue
02-16			Tissue
02-17			Tissue
Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details KEEP FROZEN. HOLD FOR ANALYSIS UNTIL FURTHER INSTRUCTIONS RECEIVED Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab. Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.			
SHIPMENT RECEPTION (lab use only)		SHIPMENT VERIFICATION (lab use only)	
Date (dd-mm-yy)	Time (hh-mm)	Received by:	Date:
		78	Nov 7 22:50
Temperature	Verified by:	Date:	Time:
1 °C			
Observations: Yes / No ? If Yes add SIF			

GENF 18.01 Front



L2019410-COFC

GENF 18.01 From



GENF 18.01 Front



GENF 18.01 Front





October 17, 2017

ALS Quote: Q64799

Created: 17-Oct-2017

Genevieve Morinville

ERM Consultants Canada Ltd.
Richmond Adelaide Centre
120 Adelaide St. W., Suite 2010
Toronto, ON M5H 1T1

Dear: Genevieve Morinville,

RE: Price Quotation for Telkwa - Tissue Analysis

We are pleased to present our technical and price quotation to carry out the work as outlined under the above referenced project.

Our price quotation and a list of ALS Environmental's unique technical and service advantages are attached.

Thank you for requesting our quotation. We look forward to the prospect of providing you with the quality service you require. Please call us at (604) 253-4188 or 1-800-668-9878 if you require any additional information.

Sincerely,

Amber Springer, B.Sc
Account Manager



Price Quotation for Telkwa - Tissue Analysis

Please reference the above ALS quote number on the chain of custody when submitting samples for analysis under this quotation.

The following prices are in Canadian dollars, and are valid from 17-Oct-2017 to 17-Apr-2018.

Est. # of Samples	Product	Description	Price per Sample	Sub-Total Price
Tissue Samples				
70	AG-DRY-CCMS-N-VA	Silver in Tissue by CRC ICPMS (DRY)	\$0.00	\$0.00
70	AG-WET-CCMS-N-VA	Silver in Tissue by CRC ICPMS (WET)	\$32.50	\$2,275.00
70	HG-DRY-CVAFS-N-VA	Mercury in Tissue by CVAFS (DRY)	\$0.00	\$0.00
70	HG-WET-CVAFS-N-VA	Mercury in Tissue by CVAFS (WET)	\$13.00	\$910.00
70	MET-DRY-CCMS-N-VA	Metals in Tissue by CRC ICPMS (DRY)	\$0.00	\$0.00
70	MET-WET-CCMS-N-VA	Metals in Tissue by CRC ICPMS (WET)	\$107.25	\$7,507.50
70	MOISTURE-TISS-VA	% Moisture in Tissues	\$3.25	\$227.50
70	PREP-TISS-DIGEST-VA	Tissue/Vegetation Sample Preparation	\$13.00	\$910.00
Misc. Samples				
70	SAMPLE-DISPOSAL-VA	Sample Handling and Disposal Fee	\$1.75	\$122.50
Total Amount (excluding taxes)				\$11,952.50

Additional Comments

Listed codes, costs and DLs are applicable to samples with a minimum of 3.5g of material available for digestion, after homogenization. Please contact ALS for details relating to smaller samples, if needed.

Any dissections or large-volume homogenization will be billed at a rate of \$48.75 per hour.



Technical and Service Highlights (Canada)

The ALS Group's Environmental Division (ALS) is a full-service, testing, research, and consulting laboratory specializing in environmental chemistry. We offer several unique advantages that will benefit your project. The most notable highlights are as follows:

Previous Experience - ALS has provided analytical services and technical support to environmental consulting and engineering firms, industry, and government since 1982. These environmental projects routinely involve trace level determinations in a variety of sample matrices, and require stringent quality control and rapid sample turnaround. Repeat business by our valued clients shows that they appreciate our unique services and dedication to quality. Routine testing for all industries is supported by more specialized services, such as;

- Agricultural Testing
- Air Quality Analysis including stack testing, ambient air monitoring and siloxanes testing from landfills
- Asbestos Testing
- Drilling Waste Testing
- Drinking water microbial source tracking
- Drug Testing
- Emergency spill response
- Food Microbiology Services
- Food Safety
- Occupational Exposure Monitoring including arsenic speciation and other metals in urine
- Industrial Hygiene
- Ultra Trace Metals Analysis including speciation of Arsenic, Chromium, Mercury and Selenium
- Mould Analysis
- Mining Industry Services including acid base accounting (ABA) and kinetic cell testing
- Radiochemistry
- Research and Method Development

Laboratory Locations - ALS's Environmental Division (Canada) has 17 locations throughout BC, AB, SK, MB, ON, NWT, and YT with the additional support from over 50 ALS laboratories in 21 countries all over the globe. Please visit www.alsglobal.com for more details.

Range of Services and Resources - ALS's Canadian Environmental laboratories are well-equipped and staffed by more than 600 professionals who provide the necessary technical resources required by our clients. Many alternative analytical procedures and the instrumentation necessary are readily available in our facility. ALS can meet our promised turnaround time commitments because we have a large test capacity, each primary piece of equipment has one or more backup systems, and our chemists are cross-trained in a variety of procedures. This gives us a great deal of flexibility to direct resources where they are most needed.

For information about ALS accreditations and certifications please contact your Account Manager or visit our webpage at www.alsglobal.com (see Canada downloads).

Sampling Supplies - ALS will provide all necessary sample containers, labels (including pre-labeling of containers), chain of custody, preservation chemicals, and shipping containers. Instructions for sampling and preservation will be provided as required.

Analysis Methods - All samples will be analyzed in accordance with the needs of the requisite regulatory agency. We perform only environmental analyses so all equipment and apparatus is dedicated to low-level determinations.

Data Reliability - Environmental professionals trust ALS because of consistent performance in providing credible results



Technical and Service Highlights (Canada)

using validated methods and incorporating a comprehensive quality management program. ALS strives to be a leader among laboratories in quality. Through participation in inter laboratory and certification programs, we have demonstrated exceptional performance in testing for a wide range of parameters in various sample types. At ALS, we stand behind all data produced.

Data Management - ALS's Environmental Division in Canada has a fully integrated computer system utilized by all our locations for data management and reporting. All data is entered "only once" by the analysts into our Laboratory Information Management System (LIMS) which improves quality by eliminating future transcription errors. Data will be provided in a formal report summarizing the results, methodology, and appropriate comments.

Data can be sent in a variety of custom electronic data deliverables (EDDs) or accessed 24/7 through our secure web-based server (Webtrieve). Webtrieve will allow registered clients to automatically compare their data against most commonly used regulations in Canada and provide a quick visual presentation of any results that have exceeded regulatory limits.

Project Support and Access to Expertise - ALS is well known for an ability to complete projects on time and on budget. We provide qualified assistance with project mobilization, final review, and follow up. ALS has a philosophy of open communication that ensures direct contact with all personnel, including senior management and our Centre of Excellence. This "resource" can often be of assistance in problem solving or data interpretation.

Security and Confidentiality - All information generated by ALS, and all communication with our clients, is treated confidentially. The security and integrity of our database has always been a priority.



APPENDIX

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Group's Environmental Division and the party named in the Offer (the "Client").

1. Definitions. Capitalized Terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. The Services. ALS will provide the Services to the Client as described in the Offer and in any chain of custody form provided with any sample.
3. Prices. ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations are reviewed and updated on a yearly basis.
4. Payment Terms. The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. Quotation Numbers. The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. Taxes. Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. Quality Control. ALS has an extensive QA/QC program. Clients' samples are analyzed using approved, referenced procedures followed by thorough data validation prior to reporting the analytical results.
8. Test Results are Not Guaranteed. Results are obtained from analytical measurements that are subject to inherent variability. Measurement results reflect characteristics of submitted test samples at time of analysis. The Client is responsible for informing itself on the limitation of test results and acknowledges that test results are not guaranteed.
9. Standard of Care. ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. Storage. Where possible, ALS will store samples for 30 days from the date a final report is issued to the Client, after which ALS may discard the samples.
11. Holds. If the Client requests a sample to be placed on hold, ALS will store the sample for 30 days from date of receipt, after which ALS will invoice the Client and discard the sample. Longer hold periods are available upon request.
12. Archives. If the Client requests a sample be archived, ALS will invoice in advance and store the sample for the period requested, after which ALS may discard the sample.
13. Handling Protocol. Legal sample handling protocol must be arranged before samples are collected. ALS charges a minimum 20% surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Additional charges will apply for samples that require storage by ALS.
14. Samples. The quality, condition, content and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. Risk of Loss. ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. Environmental. The Client must comply with all applicable environment legislation, including labeling all hazardous samples to comply with WHMIS and TDG regulations, and must provide appropriate safety data sheets (previously referred to as "MSDS") that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. Hazardous Materials Disposal. ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. Hazardous Materials Surcharge. ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, CN, etc.
19. Sample Containers. ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. Additional Charges. ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pick up and delivery services are provided, subject in each instance to a minimum charge of \$25.00.
21. Re-Tests. ALS reserves the right to re-test any samples that remains in its possession. Re-tests requested by the Client may be charged.
22. Waiver. The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
23. Limitation of Liability. In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary or punitive damages, whether foreseeable or unforeseeable, (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets) incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 22 and 24, as the applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
24. Notice of Liability. Notwithstanding paragraph 23, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
25. Third Party Service Provider Indemnity. Should the Client require ALS to forward samples and/or obtain services from a third party service provider, the Client will provide ALS notice in writing. The Client indemnifies ALS against any breach of this Agreement, all liabilities or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
26. Third Party Service Provider Indemnity. If ALS is required to engage a third party service provider for whatever reason, the Client indemnifies ALS against any breach of this Agreement, liabilities or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
27. Entire Agreement. The Agreement is the entire agreement between the parties and supersedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.
28. Term. Providing the first batch of samples to which this tender refers is submitted within three months of the starting date of this quotation, the following prices, terms and conditions will remain firm until the closing date. This offer, and terms and conditions will automatically lapse if the offer has not been accepted, and samples not delivered to ALS, within the Closing Date.
29. Termination. (a) Either party may terminate this Agreement for any reason by giving the other party thirty (30) days written notice (Notice Period). (b) If the Agreement is terminated pursuant to clause (a), then the Client must pay ALS for all Services performed up to the expiry of the Notice Period.



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
Tissue-Physical Tests			
% Moisture	Puget Sound WQ Authority, Apr 1997	0.50	%
Tissue-Metals			
Aluminum (Al)-Total	EPA 200.3/6020A	0.40	mg/kg wwt
Aluminum (Al)-Total	EPA 200.3/6020A	2.0	mg/kg
Antimony (Sb)-Total	EPA 200.3/6020A	0.0020	mg/kg wwt
Antimony (Sb)-Total	EPA 200.3/6020A	0.010	mg/kg
Arsenic (As)-Total	EPA 200.3/6020A	0.0040	mg/kg wwt
Arsenic (As)-Total	EPA 200.3/6020A	0.020	mg/kg
Barium (Ba)-Total	EPA 200.3/6020A	0.010	mg/kg wwt
Barium (Ba)-Total	EPA 200.3/6020A	0.050	mg/kg
Beryllium (Be)-Total	EPA 200.3/6020A	0.0020	mg/kg wwt
Beryllium (Be)-Total	EPA 200.3/6020A	0.010	mg/kg
Bismuth (Bi)-Total	EPA 200.3/6020A	0.0020	mg/kg wwt
Bismuth (Bi)-Total	EPA 200.3/6020A	0.010	mg/kg
Boron (B)-Total	EPA 200.3/6020A	0.20	mg/kg wwt
Boron (B)-Total	EPA 200.3/6020A	1.0	mg/kg
Cadmium (Cd)-Total	EPA 200.3/6020A	0.0010	mg/kg wwt
Cadmium (Cd)-Total	EPA 200.3/6020A	0.0050	mg/kg
Calcium (Ca)-Total	EPA 200.3/6020A	4.0	mg/kg wwt
Calcium (Ca)-Total	EPA 200.3/6020A	20	mg/kg
Cesium (Cs)-Total	EPA 200.3/6020A	0.0010	mg/kg wwt
Cesium (Cs)-Total	EPA 200.3/6020A	0.0050	mg/kg
Chromium (Cr)-Total	EPA 200.3/6020A	0.010	mg/kg wwt
Chromium (Cr)-Total	EPA 200.3/6020A	0.050	mg/kg
Cobalt (Co)-Total	EPA 200.3/6020A	0.0040	mg/kg wwt
Cobalt (Co)-Total	EPA 200.3/6020A	0.020	mg/kg
Copper (Cu)-Total	EPA 200.3/6020A	0.020	mg/kg wwt
Copper (Cu)-Total	EPA 200.3/6020A	0.10	mg/kg
Iron (Fe)-Total	EPA 200.3/6020A	0.60	mg/kg wwt
Iron (Fe)-Total	EPA 200.3/6020A	3.0	mg/kg



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
Lead (Pb)-Total	EPA 200.3/6020A	0.0040	mg/kg wwt
Lead (Pb)-Total	EPA 200.3/6020A	0.020	mg/kg
Lithium (Li)-Total	EPA 200.3/6020A	0.10	mg/kg wwt
Lithium (Li)-Total	EPA 200.3/6020A	0.50	mg/kg
Magnesium (Mg)-Total	EPA 200.3/6020A	0.40	mg/kg wwt
Magnesium (Mg)-Total	EPA 200.3/6020A	2.0	mg/kg
Manganese (Mn)-Total	EPA 200.3/6020A	0.010	mg/kg wwt
Manganese (Mn)-Total	EPA 200.3/6020A	0.050	mg/kg
Mercury (Hg)-Total	EPA 200.3, EPA 245.7	0.0010	mg/kg wwt
Mercury (Hg)-Total	EPA 200.3, EPA 245.7	0.0050	mg/kg
Molybdenum (Mo)-Total	EPA 200.3/6020A	0.0040	mg/kg wwt
Molybdenum (Mo)-Total	EPA 200.3/6020A	0.020	mg/kg
Nickel (Ni)-Total	EPA 200.3/6020A	0.040	mg/kg wwt
Nickel (Ni)-Total	EPA 200.3/6020A	0.20	mg/kg
Phosphorus (P)-Total	EPA 200.3/6020A	2.0	mg/kg wwt
Phosphorus (P)-Total	EPA 200.3/6020A	10	mg/kg
Potassium (K)-Total	EPA 200.3/6020A	4.0	mg/kg wwt
Potassium (K)-Total	EPA 200.3/6020A	20	mg/kg
Rubidium (Rb)-Total	EPA 200.3/6020A	0.010	mg/kg wwt
Rubidium (Rb)-Total	EPA 200.3/6020A	0.050	mg/kg
Selenium (Se)-Total	EPA 200.3/6020A	0.010	mg/kg wwt
Selenium (Se)-Total	EPA 200.3/6020A	0.050	mg/kg
Silver (Ag)-Total	EPA 200.3/6020A	0.0010	mg/kg wwt
Silver (Ag)-Total	EPA 200.3/6020A	0.0050	mg/kg
Sodium (Na)-Total	EPA 200.3/6020A	4.0	mg/kg wwt
Sodium (Na)-Total	EPA 200.3/6020A	20	mg/kg
Strontium (Sr)-Total	EPA 200.3/6020A	0.010	mg/kg wwt
Strontium (Sr)-Total	EPA 200.3/6020A	0.050	mg/kg
Tellurium (Te)-Total	EPA 200.3/6020A	0.0040	mg/kg wwt
Tellurium (Te)-Total	EPA 200.3/6020A	0.020	mg/kg
Thallium (Tl)-Total	EPA 200.3/6020A	0.00040	mg/kg wwt



Quoted Parameters with Detection Limits

Parameter	Method Reference	Report D.L.	Units
Thallium (Tl)-Total	EPA 200.3/6020A	0.0020	mg/kg
Tin (Sn)-Total	EPA 200.3/6020A	0.020	mg/kg wwt
Tin (Sn)-Total	EPA 200.3/6020A	0.10	mg/kg
Uranium (U)-Total	EPA 200.3/6020A	0.00040	mg/kg wwt
Uranium (U)-Total	EPA 200.3/6020A	0.0020	mg/kg
Vanadium (V)-Total	EPA 200.3/6020A	0.020	mg/kg wwt
Vanadium (V)-Total	EPA 200.3/6020A	0.10	mg/kg
Zinc (Zn)-Total	EPA 200.3/6020A	0.10	mg/kg wwt
Zinc (Zn)-Total	EPA 200.3/6020A	0.50	mg/kg
Zirconium (Zr)-Total	EPA 200.3/6020A	0.040	mg/kg wwt
Zirconium (Zr)-Total	EPA 200.3/6020A	0.20	mg/kg



ERM Consultants Canada Ltd.
ATTN: Genevieve Morinville
Richmond Adelaide Centre
120 Adelaide St. W., Suite 2010
Toronto ON M5H 1T1

Date Received: 07-NOV-17
Report Date: 31-JAN-18 15:34 (MT)
Version: FINAL

Client Phone: 416-646-3608

Certificate of Analysis

Lab Work Order #: L2019410
Project P.O. #: NOT SUBMITTED
Job Reference: 0403488-0008
C of C Numbers: 1, 2, 3, 4, 5
Legal Site Desc:

Amber Springer, B.Sc
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-1 Tissue 11-OCT-17 505-8	L2019410-2 Tissue 11-OCT-17 505-9	L2019410-3 Tissue 11-OCT-17 505-10	L2019410-4 Tissue 11-OCT-17 505-11	L2019410-5 Tissue 11-OCT-17 505-12
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	78.0	78.1	78.0	77.7	77.9
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
	Aluminum (Al)-Total (mg/kg ww)	<1.0	<1.0	<1.0	<1.0	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.092	0.167	0.080	0.092	0.127
	Arsenic (As)-Total (mg/kg ww)	0.0202	0.0364	0.0176	0.0206	0.0280
	Barium (Ba)-Total (mg/kg)	1.49	0.685	1.73	0.606	0.565
	Barium (Ba)-Total (mg/kg ww)	0.327	0.150	0.381	0.136	0.125
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	0.063	0.011	0.039	0.024	0.029
	Cadmium (Cd)-Total (mg/kg ww)	0.0139	0.0023	0.0086	0.0054	0.0064
	Calcium (Ca)-Total (mg/kg)	4310	4010	6500	2530	2120
	Calcium (Ca)-Total (mg/kg ww)	946	878	1430	566	468
	Cesium (Cs)-Total (mg/kg)	0.438	0.417	0.384	0.447	0.421
	Cesium (Cs)-Total (mg/kg ww)	0.0961	0.0912	0.0845	0.0998	0.0931
	Chromium (Cr)-Total (mg/kg)	0.22	<0.20	0.60	0.27	0.25
	Chromium (Cr)-Total (mg/kg ww)	0.048	<0.040	0.131	0.060	0.054
	Cobalt (Co)-Total (mg/kg)	0.198	0.118	0.088	0.178	0.219
	Cobalt (Co)-Total (mg/kg ww)	0.0435	0.0258	0.0194	0.0398	0.0485
	Copper (Cu)-Total (mg/kg)	2.22	1.45	1.13	2.05	1.61
	Copper (Cu)-Total (mg/kg ww)	0.487	0.317	0.248	0.459	0.356
	Iron (Fe)-Total (mg/kg)	25.4	13.8	19.3	20.9	15.0
	Iron (Fe)-Total (mg/kg ww)	5.6	3.0	4.3	4.7	3.3
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.010	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1060	1190	1190	1080	1180
	Magnesium (Mg)-Total (mg/kg ww)	233	260	263	242	262
	Manganese (Mn)-Total (mg/kg)	1.19	1.21	2.60	0.951	1.05
	Manganese (Mn)-Total (mg/kg ww)	0.261	0.265	0.571	0.213	0.233

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-6 Tissue 11-OCT-17 505-13	L2019410-7 Tissue 11-OCT-17 505-14	L2019410-8 Tissue 11-OCT-17 505-15	L2019410-9 Tissue 11-OCT-17 501-11	L2019410-10 Tissue 12-OCT-17 501-12
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	78.2	78.1	78.6	77.8	76.4
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
	Aluminum (Al)-Total (mg/kg ww)	<1.0	<1.0	<1.0	<1.0	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.078	0.092	0.452	0.070	0.127
	Arsenic (As)-Total (mg/kg ww)	0.0171	0.0203	0.0966	0.0155	0.0300
	Barium (Ba)-Total (mg/kg)	1.62	1.14	0.824	1.04	0.896
	Barium (Ba)-Total (mg/kg ww)	0.352	0.250	0.176	0.230	0.211
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	0.050	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	0.0111	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	0.072	0.081	0.021	0.018	<0.010
	Cadmium (Cd)-Total (mg/kg ww)	0.0156	0.0177	0.0044	0.0041	0.0023
	Calcium (Ca)-Total (mg/kg)	3990	4900	2390	4020	4160
	Calcium (Ca)-Total (mg/kg ww)	868	1070	511	890	981
	Cesium (Cs)-Total (mg/kg)	0.464	0.402	0.367	0.869	1.25
	Cesium (Cs)-Total (mg/kg ww)	0.101	0.0882	0.0785	0.193	0.294
	Chromium (Cr)-Total (mg/kg)	<0.20	0.24	<0.20	0.36	<0.20
	Chromium (Cr)-Total (mg/kg ww)	<0.040	0.052	<0.040	0.079	<0.040
	Cobalt (Co)-Total (mg/kg)	0.168	0.179	0.109	0.072	0.069
	Cobalt (Co)-Total (mg/kg ww)	0.0365	0.0393	0.0233	0.0161	0.0162
	Copper (Cu)-Total (mg/kg)	1.27	1.68	0.94	1.58	1.46
	Copper (Cu)-Total (mg/kg ww)	0.277	0.368	0.201	0.350	0.345
	Iron (Fe)-Total (mg/kg)	16.3	19.8	11.7	15.7	14.3
	Iron (Fe)-Total (mg/kg ww)	3.5	4.3	2.5	3.5	3.4
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.010	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1190	1180	1190	1250	1110
	Magnesium (Mg)-Total (mg/kg ww)	259	258	254	277	262
	Manganese (Mn)-Total (mg/kg)	2.55	2.21	0.978	2.01	1.55
	Manganese (Mn)-Total (mg/kg ww)	0.556	0.485	0.209	0.446	0.366

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-11 Tissue 12-OCT-17 501-13	L2019410-12 Tissue 12-OCT-17 501-14	L2019410-13 Tissue 12-OCT-17 501-15	L2019410-14 Tissue 12-OCT-17 501-16	L2019410-15 Tissue 12-OCT-17 501-17
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	76.6	76.2	77.0	78.3	78.1
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<5.0	<5.0	<2.0	<5.0
	Aluminum (Al)-Total (mg/kg ww)	<1.0	<1.0	<1.0	<0.40	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.180	0.198	0.089	0.095	0.192
	Arsenic (As)-Total (mg/kg ww)	0.0421	0.0472	0.0205	0.0206	0.0422
	Barium (Ba)-Total (mg/kg)	0.969	0.571	0.463	0.449	0.838
	Barium (Ba)-Total (mg/kg ww)	0.227	0.136	0.106	0.097	0.184
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	0.772	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	0.184	<0.0020	0.0022	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	<0.010	<0.010	<0.010	0.0051	<0.010
	Cadmium (Cd)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	0.0011	<0.0020
	Calcium (Ca)-Total (mg/kg)	5570	2530	3170	2330	2500
	Calcium (Ca)-Total (mg/kg ww)	1300	604	729	507	547
	Cesium (Cs)-Total (mg/kg)	1.03	1.44	0.930	0.944	1.01
	Cesium (Cs)-Total (mg/kg ww)	0.241	0.343	0.214	0.205	0.221
	Chromium (Cr)-Total (mg/kg)	<0.20	<0.20	<0.20	0.157	<0.20
	Chromium (Cr)-Total (mg/kg ww)	<0.040	0.044	<0.040	0.034	0.040
	Cobalt (Co)-Total (mg/kg)	0.067	0.048	0.035	0.047	0.092
	Cobalt (Co)-Total (mg/kg ww)	0.0157	0.0114	0.0079	0.0102	0.0201
	Copper (Cu)-Total (mg/kg)	1.45	1.86	1.60	1.82	1.87
	Copper (Cu)-Total (mg/kg ww)	0.341	0.444	0.368	0.394	0.410
	Iron (Fe)-Total (mg/kg)	13.5	20.5	17.5	16.3	19.9
	Iron (Fe)-Total (mg/kg ww)	3.2	4.9	4.0	3.54	4.4
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.020	<0.050
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.0040	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1200	1140	1100	1280	1150
	Magnesium (Mg)-Total (mg/kg ww)	281	273	253	277	252
	Manganese (Mn)-Total (mg/kg)	1.61	5.91	1.35	0.854	0.998
	Manganese (Mn)-Total (mg/kg ww)	0.377	1.41	0.310	0.185	0.219

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-16 Tissue 12-OCT-17 501-18	L2019410-17 Tissue 12-OCT-17 511-10	L2019410-18 Tissue 12-OCT-17 511-11	L2019410-19 Tissue 12-OCT-17 511-12	L2019410-20 Tissue 12-OCT-17 511-13
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	78.0	77.8	79.1	76.6	78.9
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<2.0	<2.0	<5.0	<5.0
	Aluminum (Al)-Total (mg/kg wwt)	<1.0	<0.40	<0.40	<1.0	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	0.0021	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.120	0.203	0.196	0.113	0.128
	Arsenic (As)-Total (mg/kg wwt)	0.0265	0.0451	0.0409	0.0265	0.0269
	Barium (Ba)-Total (mg/kg)	0.596	0.803	2.46	1.58	1.40
	Barium (Ba)-Total (mg/kg wwt)	0.131	0.179	0.513	0.368	0.295
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	<0.010	0.0157	0.0133	<0.010	0.012
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0020	0.0035	0.0028	<0.0020	0.0025
	Calcium (Ca)-Total (mg/kg)	3720	3560	4700	5600	3720
	Calcium (Ca)-Total (mg/kg wwt)	819	792	981	1310	782
	Cesium (Cs)-Total (mg/kg)	1.33	0.0326	0.0228	0.0443	0.0311
	Cesium (Cs)-Total (mg/kg wwt)	0.292	0.0073	0.0048	0.0103	0.0066
	Chromium (Cr)-Total (mg/kg)	<0.20	0.140	0.131	<0.20	<0.20
	Chromium (Cr)-Total (mg/kg wwt)	<0.040	0.031	0.027	<0.040	<0.040
	Cobalt (Co)-Total (mg/kg)	0.070	0.046	0.044	0.028	0.054
	Cobalt (Co)-Total (mg/kg wwt)	0.0154	0.0103	0.0093	0.0066	0.0113
	Copper (Cu)-Total (mg/kg)	1.64	1.49	1.70	1.19	1.33
	Copper (Cu)-Total (mg/kg wwt)	0.362	0.331	0.355	0.278	0.281
	Iron (Fe)-Total (mg/kg)	14.0	18.0	18.8	13.4	16.3
	Iron (Fe)-Total (mg/kg wwt)	3.1	4.00	3.93	3.1	3.4
	Lead (Pb)-Total (mg/kg)	<0.050	<0.020	<0.020	<0.050	<0.050
	Lead (Pb)-Total (mg/kg wwt)	<0.010	<0.0040	<0.0040	<0.010	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1220	1390	1380	1280	1250
	Magnesium (Mg)-Total (mg/kg wwt)	268	309	289	299	264
	Manganese (Mn)-Total (mg/kg)	1.25	1.87	3.35	1.85	2.25
	Manganese (Mn)-Total (mg/kg wwt)	0.276	0.415	0.700	0.432	0.475

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-21 Tissue 12-OCT-17 511-14	L2019410-22 Tissue 12-OCT-17 511-15	L2019410-23 Tissue 12-OCT-17 511-16	L2019410-24 Tissue 12-OCT-17 511-17	L2019410-25 Tissue 13-OCT-17 508-5
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	78.4	79.0	77.7	78.5	78.9
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<5.0	<5.0	<2.0	<5.0
	Aluminum (Al)-Total (mg/kg ww)	<1.0	<1.0	<1.0	0.42	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.104	0.109	0.130	0.182	0.052
	Arsenic (As)-Total (mg/kg ww)	0.0225	0.0230	0.0290	0.0392	0.0109
	Barium (Ba)-Total (mg/kg)	1.15	1.32	0.894	1.59	3.19
	Barium (Ba)-Total (mg/kg ww)	0.248	0.278	0.200	0.342	0.672
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	0.018	0.017	<0.010	0.0119	0.042
	Cadmium (Cd)-Total (mg/kg ww)	0.0038	0.0036	<0.0020	0.0026	0.0088
	Calcium (Ca)-Total (mg/kg)	4250	4110	1920	5080	10300
	Calcium (Ca)-Total (mg/kg ww)	916	865	429	1090	2160
	Cesium (Cs)-Total (mg/kg)	0.0280	0.0261	0.0170	0.0281	0.0701
	Cesium (Cs)-Total (mg/kg ww)	0.0060	0.0055	0.0038	0.0060	0.0148
	Chromium (Cr)-Total (mg/kg)	0.48	0.33	<0.20	0.063	<0.20
	Chromium (Cr)-Total (mg/kg ww)	0.103	0.070	<0.040	0.014	<0.040
	Cobalt (Co)-Total (mg/kg)	0.038	0.057	0.039	0.026	0.061
	Cobalt (Co)-Total (mg/kg ww)	0.0083	0.0119	0.0086	0.0055	0.0129
	Copper (Cu)-Total (mg/kg)	1.35	1.58	1.29	1.63	1.07
	Copper (Cu)-Total (mg/kg ww)	0.290	0.333	0.289	0.350	0.224
	Iron (Fe)-Total (mg/kg)	18.0	19.6	14.0	17.8	13.6
	Iron (Fe)-Total (mg/kg ww)	3.9	4.1	3.1	3.83	2.9
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.020	<0.050
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.0040	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1340	1270	1120	1370	1210
	Magnesium (Mg)-Total (mg/kg ww)	290	268	250	295	255
	Manganese (Mn)-Total (mg/kg)	4.83	3.43	1.59	2.60	6.04
	Manganese (Mn)-Total (mg/kg ww)	1.04	0.722	0.355	0.560	1.27

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-26 Tissue 13-OCT-17 508-6	L2019410-27 Tissue 13-OCT-17 508-7	L2019410-28 Tissue 13-OCT-17 508-8	L2019410-29 Tissue 13-OCT-17 508-9	L2019410-30 Tissue 13-OCT-17 508-10
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	79.2	79.5	80.1	80.1	80.9
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	7.4	<5.0	<5.0	<5.0
	Aluminum (Al)-Total (mg/kg ww)	<1.0	1.5	<1.0	<1.0	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.068	0.253	0.097	0.086	0.109
	Arsenic (As)-Total (mg/kg ww)	0.0141	0.0519	0.0192	0.0171	0.0207
	Barium (Ba)-Total (mg/kg)	1.42	1.21	0.768	2.60	1.00
	Barium (Ba)-Total (mg/kg ww)	0.296	0.248	0.153	0.518	0.192
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	1.0	1.4
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	0.20	0.27
	Cadmium (Cd)-Total (mg/kg)	0.017	0.019	0.024	0.058	0.020
	Cadmium (Cd)-Total (mg/kg ww)	0.0035	0.0038	0.0047	0.0116	0.0037
	Calcium (Ca)-Total (mg/kg)	4350	2470	1880	6230	2160
	Calcium (Ca)-Total (mg/kg ww)	905	506	373	1240	412
	Cesium (Cs)-Total (mg/kg)	0.0859	0.179	0.0828	0.0877	0.0798
	Cesium (Cs)-Total (mg/kg ww)	0.0179	0.0367	0.0165	0.0175	0.0152
	Chromium (Cr)-Total (mg/kg)	0.31	0.42	0.28	0.32	<0.20
	Chromium (Cr)-Total (mg/kg ww)	0.066	0.086	0.056	0.064	<0.040
	Cobalt (Co)-Total (mg/kg)	0.041	0.090	0.141	0.398	0.163
	Cobalt (Co)-Total (mg/kg ww)	0.0085	0.0184	0.0281	0.0792	0.0310
	Copper (Cu)-Total (mg/kg)	1.58	1.49	0.92	1.68	1.55
	Copper (Cu)-Total (mg/kg ww)	0.328	0.305	0.183	0.335	0.295
	Iron (Fe)-Total (mg/kg)	16.6	26.7	20.4	34.7	20.0
	Iron (Fe)-Total (mg/kg ww)	3.4	5.5	4.0	6.9	3.8
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.010	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1340	1270	1270	1310	1390
	Magnesium (Mg)-Total (mg/kg ww)	279	261	252	260	265
	Manganese (Mn)-Total (mg/kg)	3.34	2.53	1.53	5.70	1.98
	Manganese (Mn)-Total (mg/kg ww)	0.696	0.519	0.305	1.13	0.378

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-31 Tissue 13-OCT-17 508-11	L2019410-32 Tissue 13-OCT-17 508-12	L2019410-33 Tissue 13-OCT-17 509-6	L2019410-34 Tissue 13-OCT-17 509-7	L2019410-35 Tissue 13-OCT-17 509-8
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	79.3	77.6	79.7	79.3	79.0
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
	Aluminum (Al)-Total (mg/kg ww)	<1.0	<1.0	<1.0	<1.0	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.069	0.087	0.072	0.078	0.141
	Arsenic (As)-Total (mg/kg ww)	0.0142	0.0194	0.0147	0.0162	0.0297
	Barium (Ba)-Total (mg/kg)	1.18	0.794	1.12	1.00	0.628
	Barium (Ba)-Total (mg/kg ww)	0.245	0.178	0.228	0.208	0.132
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	0.013	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	0.0027	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	0.119	<0.010	0.053	0.021	0.011
	Cadmium (Cd)-Total (mg/kg ww)	0.0245	<0.0020	0.0108	0.0044	0.0023
	Calcium (Ca)-Total (mg/kg)	4570	3580	3520	2500	2880
	Calcium (Ca)-Total (mg/kg ww)	943	802	712	518	606
	Cesium (Cs)-Total (mg/kg)	0.0868	0.106	0.112	0.254	0.117
	Cesium (Cs)-Total (mg/kg ww)	0.0179	0.0237	0.0226	0.0527	0.0245
	Chromium (Cr)-Total (mg/kg)	<0.20	<0.20	0.26	0.57	<0.20
	Chromium (Cr)-Total (mg/kg ww)	<0.040	<0.040	0.052	0.118	<0.040
	Cobalt (Co)-Total (mg/kg)	0.182	0.040	0.100	0.077	0.094
	Cobalt (Co)-Total (mg/kg ww)	0.0376	0.0090	0.0202	0.0160	0.0197
	Copper (Cu)-Total (mg/kg)	1.62	1.15	1.58	1.27	1.17
	Copper (Cu)-Total (mg/kg ww)	0.335	0.258	0.320	0.264	0.245
	Iron (Fe)-Total (mg/kg)	23.0	14.2	20.9	14.1	27.9
	Iron (Fe)-Total (mg/kg ww)	4.7	3.2	4.2	2.9	5.9
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.010	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1170	1130	1320	1250	1230
	Magnesium (Mg)-Total (mg/kg ww)	241	253	268	258	258
	Manganese (Mn)-Total (mg/kg)	2.13	1.62	1.95	1.57	2.01
	Manganese (Mn)-Total (mg/kg ww)	0.441	0.363	0.396	0.326	0.422

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-36 Tissue 13-OCT-17 509-9	L2019410-37 Tissue 13-OCT-17 509-10	L2019410-38 Tissue 13-OCT-17 509-11	L2019410-39 Tissue 13-OCT-17 509-12	L2019410-40 Tissue 13-OCT-17 509-13
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	79.0	80.0	79.5	79.2	79.2
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
	Aluminum (Al)-Total (mg/kg ww)	<1.0	<1.0	<1.0	<1.0	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.101	0.075	0.087	0.114	0.060
	Arsenic (As)-Total (mg/kg ww)	0.0211	0.0150	0.0177	0.0237	0.0125
	Barium (Ba)-Total (mg/kg)	1.01	1.68	1.26	1.30	0.818
	Barium (Ba)-Total (mg/kg ww)	0.212	0.336	0.259	0.270	0.170
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	1.0	<1.0
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	0.21	<0.20
	Cadmium (Cd)-Total (mg/kg)	0.043	0.021	0.012	0.018	0.051
	Cadmium (Cd)-Total (mg/kg ww)	0.0090	0.0042	0.0025	0.0037	0.0106
	Calcium (Ca)-Total (mg/kg)	3240	5980	3130	4040	2230
	Calcium (Ca)-Total (mg/kg ww)	678	1200	641	842	464
	Cesium (Cs)-Total (mg/kg)	0.164	0.173	0.112	0.122	0.131
	Cesium (Cs)-Total (mg/kg ww)	0.0343	0.0346	0.0230	0.0255	0.0273
	Chromium (Cr)-Total (mg/kg)	<0.20	0.26	0.24	0.25	<0.20
	Chromium (Cr)-Total (mg/kg ww)	<0.040	0.051	0.049	0.051	<0.040
	Cobalt (Co)-Total (mg/kg)	0.176	0.185	0.074	0.134	0.184
	Cobalt (Co)-Total (mg/kg ww)	0.0369	0.0370	0.0152	0.0279	0.0383
	Copper (Cu)-Total (mg/kg)	1.31	1.63	1.92	1.64	1.97
	Copper (Cu)-Total (mg/kg ww)	0.274	0.325	0.394	0.342	0.409
	Iron (Fe)-Total (mg/kg)	17.0	21.0	19.8	17.6	26.0
	Iron (Fe)-Total (mg/kg ww)	3.6	4.2	4.1	3.7	5.4
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.010	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1270	1480	1330	1240	1270
	Magnesium (Mg)-Total (mg/kg ww)	265	297	272	259	265
	Manganese (Mn)-Total (mg/kg)	2.25	3.29	2.06	2.44	2.00
	Manganese (Mn)-Total (mg/kg ww)	0.472	0.658	0.421	0.509	0.415

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-41 Tissue 14-OCT-17 502-10	L2019410-42 Tissue 14-OCT-17 502-11	L2019410-43 Tissue 14-OCT-17 502-12	L2019410-44 Tissue 14-OCT-17 502-13	L2019410-45 Tissue 14-OCT-17 502-14
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	78.9	78.0	77.2	76.5	76.2
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
	Aluminum (Al)-Total (mg/kg ww)	<1.0	<1.0	<1.0	<1.0	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.101	0.117	0.130	0.158	0.220
	Arsenic (As)-Total (mg/kg ww)	0.0213	0.0256	0.0296	0.0370	0.0523
	Barium (Ba)-Total (mg/kg)	0.596	1.53	0.468	0.301	0.400
	Barium (Ba)-Total (mg/kg ww)	0.125	0.337	0.107	0.071	0.095
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	<0.010	0.013	<0.010	<0.010	0.010
	Cadmium (Cd)-Total (mg/kg ww)	<0.0020	0.0028	<0.0020	<0.0020	0.0024
	Calcium (Ca)-Total (mg/kg)	2910	7280	2860	2030	1840
	Calcium (Ca)-Total (mg/kg ww)	613	1600	653	476	438
	Cesium (Cs)-Total (mg/kg)	0.627	0.664	0.632	0.804	0.762
	Cesium (Cs)-Total (mg/kg ww)	0.132	0.146	0.144	0.189	0.181
	Chromium (Cr)-Total (mg/kg)	0.24	0.31	<0.20	<0.20	<0.20
	Chromium (Cr)-Total (mg/kg ww)	0.050	0.068	<0.040	0.040	<0.040
	Cobalt (Co)-Total (mg/kg)	0.047	0.084	0.044	0.075	0.054
	Cobalt (Co)-Total (mg/kg ww)	0.0099	0.0185	0.0100	0.0175	0.0129
	Copper (Cu)-Total (mg/kg)	1.93	1.88	1.62	2.26	2.16
	Copper (Cu)-Total (mg/kg ww)	0.407	0.415	0.370	0.531	0.515
	Iron (Fe)-Total (mg/kg)	20.3	24.7	18.1	18.8	20.7
	Iron (Fe)-Total (mg/kg ww)	4.3	5.4	4.1	4.4	4.9
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.010	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1250	1330	1130	988	1010
	Magnesium (Mg)-Total (mg/kg ww)	263	293	258	232	241
	Manganese (Mn)-Total (mg/kg)	1.49	2.74	1.30	0.682	0.876
	Manganese (Mn)-Total (mg/kg ww)	0.314	0.604	0.297	0.160	0.208

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-46 Tissue 14-OCT-17 502-15	L2019410-47 Tissue 14-OCT-17 502-16	L2019410-48 Tissue 14-OCT-17 502-17	L2019410-49 Tissue 14-OCT-17 512-6	L2019410-50 Tissue 14-OCT-17 512-7
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	76.0	76.7	77.3	77.4	79.2
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<5.0	<5.0	<2.0	<5.0
	Aluminum (Al)-Total (mg/kg ww)	<1.0	<1.0	<1.0	<0.40	<1.0
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.206	0.226	0.164	0.157	0.166
	Arsenic (As)-Total (mg/kg ww)	0.0494	0.0527	0.0373	0.0355	0.0346
	Barium (Ba)-Total (mg/kg)	0.744	0.599	0.897	0.778	1.45
	Barium (Ba)-Total (mg/kg ww)	0.178	0.140	0.204	0.176	0.301
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.0050	0.016
	Cadmium (Cd)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0010	0.0033
	Calcium (Ca)-Total (mg/kg)	2510	1600	5980	2990	3990
	Calcium (Ca)-Total (mg/kg ww)	601	374	1360	677	831
	Cesium (Cs)-Total (mg/kg)	0.669	0.894	0.835	0.0359	0.0303
	Cesium (Cs)-Total (mg/kg ww)	0.160	0.208	0.190	0.0081	0.0063
	Chromium (Cr)-Total (mg/kg)	<0.20	0.29	<0.20	0.107	<0.20
	Chromium (Cr)-Total (mg/kg ww)	<0.040	0.068	<0.040	0.024	<0.040
	Cobalt (Co)-Total (mg/kg)	0.041	0.044	0.098	0.027	0.086
	Cobalt (Co)-Total (mg/kg ww)	0.0099	0.0104	0.0222	0.0061	0.0180
	Copper (Cu)-Total (mg/kg)	1.41	2.26	1.55	1.67	0.99
	Copper (Cu)-Total (mg/kg ww)	0.339	0.527	0.352	0.378	0.206
	Iron (Fe)-Total (mg/kg)	14.7	21.3	15.9	16.3	10.1
	Iron (Fe)-Total (mg/kg ww)	3.5	5.0	3.6	3.69	2.1
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.020	<0.050
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.0040	<0.010
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1230	1110	1280	1310	1120
	Magnesium (Mg)-Total (mg/kg ww)	295	259	291	297	233
	Manganese (Mn)-Total (mg/kg)	1.61	0.904	2.36	1.17	2.95
	Manganese (Mn)-Total (mg/kg ww)	0.386	0.211	0.536	0.264	0.614

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-51 Tissue 14-OCT-17 512-8	L2019410-52 Tissue 14-OCT-17 512-9	L2019410-53 Tissue 14-OCT-17 512-10	L2019410-54 Tissue 14-OCT-17 512-11	L2019410-55 Tissue 14-OCT-17 512-12
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	79.2	77.7	81.3	79.2	79.2
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	<5.0	21.8	6.6	3.7
	Aluminum (Al)-Total (mg/kg ww)	<1.0	<1.0	4.1	1.4	0.76
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.754	0.320	0.341	0.157	0.482
	Arsenic (As)-Total (mg/kg ww)	0.156	0.0714	0.0639	0.0327	0.100
	Barium (Ba)-Total (mg/kg)	2.07	0.816	6.63	2.09	0.710
	Barium (Ba)-Total (mg/kg ww)	0.430	0.182	1.24	0.436	0.148
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	<0.010	<0.010	0.049	<0.010	0.0081
	Cadmium (Cd)-Total (mg/kg ww)	<0.0020	<0.0020	0.0092	0.0020	0.0017
	Calcium (Ca)-Total (mg/kg)	4760	2080	8960	3550	2250
	Calcium (Ca)-Total (mg/kg ww)	987	465	1680	741	468
	Cesium (Cs)-Total (mg/kg)	0.0459	0.0251	0.0552	0.0331	0.0350
	Cesium (Cs)-Total (mg/kg ww)	0.0095	0.0056	0.0103	0.0069	0.0073
	Chromium (Cr)-Total (mg/kg)	<0.20	<0.20	0.44	<0.20	0.103
	Chromium (Cr)-Total (mg/kg ww)	<0.040	0.042	0.083	<0.040	0.021
	Cobalt (Co)-Total (mg/kg)	0.044	0.070	0.345	0.097	0.058
	Cobalt (Co)-Total (mg/kg ww)	0.0091	0.0156	0.0646	0.0202	0.0120
	Copper (Cu)-Total (mg/kg)	1.04	1.46	1.37	0.98	1.73
	Copper (Cu)-Total (mg/kg ww)	0.216	0.325	0.257	0.205	0.360
	Iron (Fe)-Total (mg/kg)	10.4	15.3	80.2	17.7	16.0
	Iron (Fe)-Total (mg/kg ww)	2.2	3.4	15.0	3.7	3.33
	Lead (Pb)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.020
	Lead (Pb)-Total (mg/kg ww)	<0.010	<0.010	<0.010	<0.010	<0.0040
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1280	1040	1290	1180	1300
	Magnesium (Mg)-Total (mg/kg ww)	265	233	241	247	270
	Manganese (Mn)-Total (mg/kg)	6.30	1.73	9.64	3.49	1.76
	Manganese (Mn)-Total (mg/kg ww)	1.31	0.387	1.81	0.726	0.366

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-56 Tissue 14-OCT-17 512-13				
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	79.4				
Metals	Aluminum (Al)-Total (mg/kg)	2.7				
	Aluminum (Al)-Total (mg/kg wwt)	0.55				
	Antimony (Sb)-Total (mg/kg)	<0.010				
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020				
	Arsenic (As)-Total (mg/kg)	0.225				
	Arsenic (As)-Total (mg/kg wwt)	0.0462				
	Barium (Ba)-Total (mg/kg)	0.711				
	Barium (Ba)-Total (mg/kg wwt)	0.146				
	Beryllium (Be)-Total (mg/kg)	<0.010				
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020				
	Bismuth (Bi)-Total (mg/kg)	<0.010				
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020				
	Boron (B)-Total (mg/kg)	<1.0				
	Boron (B)-Total (mg/kg wwt)	<0.20				
	Cadmium (Cd)-Total (mg/kg)	0.0172				
	Cadmium (Cd)-Total (mg/kg wwt)	0.0035				
	Calcium (Ca)-Total (mg/kg)	2760				
	Calcium (Ca)-Total (mg/kg wwt)	568				
	Cesium (Cs)-Total (mg/kg)	0.0514				
	Cesium (Cs)-Total (mg/kg wwt)	0.0106				
	Chromium (Cr)-Total (mg/kg)	0.187				
	Chromium (Cr)-Total (mg/kg wwt)	0.038				
	Cobalt (Co)-Total (mg/kg)	0.034				
	Cobalt (Co)-Total (mg/kg wwt)	0.0070				
	Copper (Cu)-Total (mg/kg)	1.59				
	Copper (Cu)-Total (mg/kg wwt)	0.326				
	Iron (Fe)-Total (mg/kg)	21.6				
	Iron (Fe)-Total (mg/kg wwt)	4.45				
	Lead (Pb)-Total (mg/kg)	<0.020				
	Lead (Pb)-Total (mg/kg wwt)	<0.0040				
	Lithium (Li)-Total (mg/kg)	<0.50				
	Lithium (Li)-Total (mg/kg wwt)	<0.10				
	Magnesium (Mg)-Total (mg/kg)	1330				
	Magnesium (Mg)-Total (mg/kg wwt)	273				
	Manganese (Mn)-Total (mg/kg)	1.80				
	Manganese (Mn)-Total (mg/kg wwt)	0.371				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-1 Tissue 11-OCT-17 505-8	L2019410-2 Tissue 11-OCT-17 505-9	L2019410-3 Tissue 11-OCT-17 505-10	L2019410-4 Tissue 11-OCT-17 505-11	L2019410-5 Tissue 11-OCT-17 505-12
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.0906	0.122	0.110	0.112	0.0859
	Mercury (Hg)-Total (mg/kg ww)	0.0199	0.0266	0.0242	0.0251	0.0190
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
	Molybdenum (Mo)-Total (mg/kg ww)	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	10600	10800	11500	9790	10800
	Phosphorus (P)-Total (mg/kg ww)	2330	2360	2520	2190	2400
	Potassium (K)-Total (mg/kg)	16900	19000	16500	17500	17100
	Potassium (K)-Total (mg/kg ww)	3710	4160	3630	3900	3780
	Rubidium (Rb)-Total (mg/kg)	21.7	21.8	16.3	22.2	24.8
	Rubidium (Rb)-Total (mg/kg ww)	4.77	4.76	3.57	4.96	5.49
	Selenium (Se)-Total (mg/kg)	1.79	1.67	1.41	1.69	1.50
	Selenium (Se)-Total (mg/kg ww)	0.394	0.364	0.310	0.378	0.333
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg ww)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	3110	2680	2750	2730	2280
	Sodium (Na)-Total (mg/kg ww)	684	586	606	611	505
	Strontium (Sr)-Total (mg/kg)	3.24	2.46	5.90	1.47	1.36
	Strontium (Sr)-Total (mg/kg ww)	0.711	0.539	1.30	0.328	0.301
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0208	0.0195	0.0179	0.0180	0.0257
	Thallium (Tl)-Total (mg/kg ww)	0.00456	0.00427	0.00393	0.00402	0.00568
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	<0.10	0.11	<0.10
	Tin (Sn)-Total (mg/kg ww)	<0.020	<0.020	<0.020	0.025	<0.020
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg ww)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	45.6	25.9	34.0	26.9	25.2
	Zinc (Zn)-Total (mg/kg ww)	10.0	5.66	7.49	6.00	5.56
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-6 Tissue 11-OCT-17 505-13	L2019410-7 Tissue 11-OCT-17 505-14	L2019410-8 Tissue 11-OCT-17 505-15	L2019410-9 Tissue 11-OCT-17 501-11	L2019410-10 Tissue 12-OCT-17 501-12
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.0790	0.0876	0.0984	0.0621	0.0658
	Mercury (Hg)-Total (mg/kg ww)	0.0172	0.0192	0.0210	0.0138	0.0155
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
	Molybdenum (Mo)-Total (mg/kg ww)	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg ww)	<0.040	0.042	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	11400	12000	10000	11500	10400
	Phosphorus (P)-Total (mg/kg ww)	2470	2630	2140	2550	2450
	Potassium (K)-Total (mg/kg)	18600	17500	18600	18100	15100
	Potassium (K)-Total (mg/kg ww)	4050	3850	3970	4010	3570
	Rubidium (Rb)-Total (mg/kg)	21.0	25.4	23.6	16.8	19.0
	Rubidium (Rb)-Total (mg/kg ww)	4.57	5.57	5.04	3.73	4.49
	Selenium (Se)-Total (mg/kg)	1.40	1.79	1.49	2.50	2.27
	Selenium (Se)-Total (mg/kg ww)	0.305	0.393	0.319	0.554	0.535
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg ww)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	2640	3020	2670	2680	2400
	Sodium (Na)-Total (mg/kg ww)	574	664	571	593	567
	Strontium (Sr)-Total (mg/kg)	3.70	2.79	1.32	3.11	3.75
	Strontium (Sr)-Total (mg/kg ww)	0.806	0.612	0.282	0.688	0.884
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0245	0.0277	0.0247	0.0116	0.0142
	Thallium (Tl)-Total (mg/kg ww)	0.00533	0.00609	0.00527	0.00257	0.00336
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	<0.10	0.23	<0.10
	Tin (Sn)-Total (mg/kg ww)	<0.020	0.020	<0.020	0.050	<0.020
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg ww)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	27.9	34.9	25.4	28.6	30.0
	Zinc (Zn)-Total (mg/kg ww)	6.07	7.66	5.42	6.34	7.07
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

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Sample ID Description Sampled Date Sampled Time Client ID		L2019410-11 Tissue 12-OCT-17 501-13	L2019410-12 Tissue 12-OCT-17 501-14	L2019410-13 Tissue 12-OCT-17 501-15	L2019410-14 Tissue 12-OCT-17 501-16	L2019410-15 Tissue 12-OCT-17 501-17
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.0822	0.0835	0.0818	0.0965	0.0917
	Mercury (Hg)-Total (mg/kg ww)	0.0193	0.0199	0.0188	0.0209	0.0201
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.040	<0.040	<0.020	<0.040
	Molybdenum (Mo)-Total (mg/kg ww)	<0.0080	<0.0080	<0.0080	<0.0040	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	11700	9720	9360	11500	10300
	Phosphorus (P)-Total (mg/kg ww)	2750	2320	2150	2500	2270
	Potassium (K)-Total (mg/kg)	15800	16700	16500	17900	17700
	Potassium (K)-Total (mg/kg ww)	3690	3990	3790	3870	3870
	Rubidium (Rb)-Total (mg/kg)	17.8	19.5	15.2	16.9	20.0
	Rubidium (Rb)-Total (mg/kg ww)	4.17	4.64	3.49	3.67	4.39
	Selenium (Se)-Total (mg/kg)	2.71	2.34	2.54	2.03	3.13
	Selenium (Se)-Total (mg/kg ww)	0.635	0.559	0.584	0.439	0.687
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg ww)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	2700	2410	2450	2750	2840
	Sodium (Na)-Total (mg/kg ww)	632	575	562	596	623
	Strontium (Sr)-Total (mg/kg)	5.32	1.92	1.86	1.58	2.26
	Strontium (Sr)-Total (mg/kg ww)	1.25	0.456	0.427	0.344	0.496
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0119	0.0171	0.0112	0.0148	0.0163
	Thallium (Tl)-Total (mg/kg ww)	0.00278	0.00409	0.00257	0.00321	0.00356
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	0.11
	Tin (Sn)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	0.025
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg ww)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	40.6	27.2	25.5	25.8	32.8
	Zinc (Zn)-Total (mg/kg ww)	9.50	6.47	5.86	5.59	7.19
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	0.33	<0.20
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	<0.040	<0.040	0.072	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-16 Tissue 12-OCT-17 501-18	L2019410-17 Tissue 12-OCT-17 511-10	L2019410-18 Tissue 12-OCT-17 511-11	L2019410-19 Tissue 12-OCT-17 511-12	L2019410-20 Tissue 12-OCT-17 511-13
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.0548	0.0884	0.112	0.0417	0.0934
	Mercury (Hg)-Total (mg/kg wwvt)	0.0121	0.0197	0.0234	0.0097	0.0197
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.020	<0.020	<0.040	<0.040
	Molybdenum (Mo)-Total (mg/kg wwvt)	<0.0080	<0.0040	<0.0040	<0.0080	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg wwvt)	<0.040	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	11000	13000	14100	12500	11500
	Phosphorus (P)-Total (mg/kg wwvt)	2420	2880	2950	2920	2410
	Potassium (K)-Total (mg/kg)	17400	19000	18100	17400	19500
	Potassium (K)-Total (mg/kg wwvt)	3820	4230	3780	4070	4100
	Rubidium (Rb)-Total (mg/kg)	20.4	7.27	6.27	7.05	8.70
	Rubidium (Rb)-Total (mg/kg wwvt)	4.49	1.62	1.31	1.65	1.83
	Selenium (Se)-Total (mg/kg)	1.79	1.51	1.24	1.36	1.22
	Selenium (Se)-Total (mg/kg wwvt)	0.395	0.335	0.259	0.319	0.258
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg wwvt)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	2490	2550	3510	2420	2760
	Sodium (Na)-Total (mg/kg wwvt)	548	567	733	564	582
	Strontium (Sr)-Total (mg/kg)	3.10	3.17	4.36	5.01	3.49
	Strontium (Sr)-Total (mg/kg wwvt)	0.683	0.704	0.911	1.17	0.734
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwvt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0195	0.0077	0.0093	0.0070	0.0081
	Thallium (Tl)-Total (mg/kg wwvt)	0.00429	0.00171	0.00195	0.00164	0.00171
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Tin (Sn)-Total (mg/kg wwvt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg wwvt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwvt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	25.0	26.1	29.3	23.1	26.7
	Zinc (Zn)-Total (mg/kg wwvt)	5.50	5.80	6.11	5.39	5.63
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwvt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

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Sample ID Description Sampled Date Sampled Time Client ID		L2019410-21 Tissue 12-OCT-17 511-14	L2019410-22 Tissue 12-OCT-17 511-15	L2019410-23 Tissue 12-OCT-17 511-16	L2019410-24 Tissue 12-OCT-17 511-17	L2019410-25 Tissue 13-OCT-17 508-5
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.0664	0.0821	0.305	0.246	0.0650
	Mercury (Hg)-Total (mg/kg wwt)	0.0143	0.0173	0.0681	0.0529	0.0137
	Molybdenum (Mo)-Total (mg/kg)	0.088	<0.040	<0.040	<0.020	<0.040
	Molybdenum (Mo)-Total (mg/kg wwt)	0.0190	<0.0080	<0.0080	<0.0040	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	0.21	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	0.045	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	12300	11800	10200	13000	14000
	Phosphorus (P)-Total (mg/kg wwt)	2660	2490	2270	2800	2940
	Potassium (K)-Total (mg/kg)	18500	17200	15600	16300	18000
	Potassium (K)-Total (mg/kg wwt)	3990	3620	3480	3510	3790
	Rubidium (Rb)-Total (mg/kg)	7.56	6.17	5.02	6.04	12.0
	Rubidium (Rb)-Total (mg/kg wwt)	1.63	1.30	1.12	1.30	2.54
	Selenium (Se)-Total (mg/kg)	1.18	1.25	0.93	1.41	2.14
	Selenium (Se)-Total (mg/kg wwt)	0.255	0.263	0.208	0.304	0.451
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg wwt)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	2430	2540	2650	3160	2600
	Sodium (Na)-Total (mg/kg wwt)	523	534	592	680	548
	Strontium (Sr)-Total (mg/kg)	4.16	3.70	1.69	4.91	8.20
	Strontium (Sr)-Total (mg/kg wwt)	0.897	0.778	0.378	1.06	1.73
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0097	0.0073	0.0070	0.0051	0.0067
	Thallium (Tl)-Total (mg/kg wwt)	0.00208	0.00154	0.00157	0.00110	0.00142
	Tin (Sn)-Total (mg/kg)	<0.10	0.17	<0.10	<0.10	<0.10
	Tin (Sn)-Total (mg/kg wwt)	<0.020	0.036	<0.020	<0.020	<0.020
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	0.0028
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	0.00058
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	33.1	38.1	27.1	29.2	31.7
	Zinc (Zn)-Total (mg/kg wwt)	7.14	8.03	6.06	6.27	6.67
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-26 Tissue 13-OCT-17 508-6	L2019410-27 Tissue 13-OCT-17 508-7	L2019410-28 Tissue 13-OCT-17 508-8	L2019410-29 Tissue 13-OCT-17 508-9	L2019410-30 Tissue 13-OCT-17 508-10
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.102	0.0972	0.0844	0.0646	0.101
	Mercury (Hg)-Total (mg/kg ww)	0.0212	0.0199	0.0168	0.0129	0.0194
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
	Molybdenum (Mo)-Total (mg/kg ww)	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	12100	11300	11100	13200	11500
	Phosphorus (P)-Total (mg/kg ww)	2520	2310	2200	2630	2200
	Potassium (K)-Total (mg/kg)	19000	19300	19900	19400	20200
	Potassium (K)-Total (mg/kg ww)	3950	3950	3970	3870	3850
	Rubidium (Rb)-Total (mg/kg)	12.6	14.7	13.7	18.3	12.4
	Rubidium (Rb)-Total (mg/kg ww)	2.62	3.02	2.73	3.63	2.36
	Selenium (Se)-Total (mg/kg)	1.82	1.39	2.38	2.74	2.00
	Selenium (Se)-Total (mg/kg ww)	0.380	0.284	0.473	0.545	0.381
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg ww)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	2530	2650	2980	3580	3220
	Sodium (Na)-Total (mg/kg ww)	527	544	593	713	615
	Strontium (Sr)-Total (mg/kg)	3.28	1.80	1.34	6.19	1.89
	Strontium (Sr)-Total (mg/kg ww)	0.682	0.368	0.266	1.23	0.361
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0109	0.0126	0.0125	0.0147	0.0109
	Thallium (Tl)-Total (mg/kg ww)	0.00226	0.00258	0.00249	0.00292	0.00207
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	<0.10	0.16	0.12
	Tin (Sn)-Total (mg/kg ww)	<0.020	<0.020	<0.020	0.032	0.023
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg ww)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	27.3	22.3	23.1	39.0	27.1
	Zinc (Zn)-Total (mg/kg ww)	5.67	4.57	4.60	7.76	5.18
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-31 Tissue 13-OCT-17 508-11	L2019410-32 Tissue 13-OCT-17 508-12	L2019410-33 Tissue 13-OCT-17 509-6	L2019410-34 Tissue 13-OCT-17 509-7	L2019410-35 Tissue 13-OCT-17 509-8
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.0656	0.0845	0.0812	0.0807	0.0741
	Mercury (Hg)-Total (mg/kg wwt)	0.0136	0.0189	0.0165	0.0167	0.0156
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	0.25	<0.20
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	0.052	<0.040
	Phosphorus (P)-Total (mg/kg)	11900	10500	11400	10200	10400
	Phosphorus (P)-Total (mg/kg wwt)	2460	2360	2320	2110	2180
	Potassium (K)-Total (mg/kg)	19800	17400	20600	19700	19300
	Potassium (K)-Total (mg/kg wwt)	4090	3890	4170	4080	4040
	Rubidium (Rb)-Total (mg/kg)	18.2	13.2	17.8	15.8	16.4
	Rubidium (Rb)-Total (mg/kg wwt)	3.76	2.96	3.60	3.28	3.45
	Selenium (Se)-Total (mg/kg)	1.99	1.26	1.91	1.98	1.83
	Selenium (Se)-Total (mg/kg wwt)	0.412	0.283	0.387	0.411	0.385
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg wwt)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	3350	2480	3630	3280	2810
	Sodium (Na)-Total (mg/kg wwt)	693	556	736	680	591
	Strontium (Sr)-Total (mg/kg)	3.91	3.68	2.99	1.58	1.83
	Strontium (Sr)-Total (mg/kg wwt)	0.808	0.825	0.605	0.328	0.384
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0101	0.0068	0.0097	0.0096	0.0106
	Thallium (Tl)-Total (mg/kg wwt)	0.00209	0.00151	0.00197	0.00199	0.00223
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Tin (Sn)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	36.6	28.7	25.6	24.0	20.3
	Zinc (Zn)-Total (mg/kg wwt)	7.56	6.43	5.20	4.97	4.27
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-36 Tissue 13-OCT-17 509-9	L2019410-37 Tissue 13-OCT-17 509-10	L2019410-38 Tissue 13-OCT-17 509-11	L2019410-39 Tissue 13-OCT-17 509-12	L2019410-40 Tissue 13-OCT-17 509-13
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.0767	0.118	0.0733	0.0762	0.0886
	Mercury (Hg)-Total (mg/kg ww)	0.0161	0.0236	0.0150	0.0159	0.0184
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
	Molybdenum (Mo)-Total (mg/kg ww)	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	10800	13400	11700	11300	11000
	Phosphorus (P)-Total (mg/kg ww)	2260	2690	2410	2370	2290
	Potassium (K)-Total (mg/kg)	18500	20700	20100	19300	19500
	Potassium (K)-Total (mg/kg ww)	3880	4140	4110	4020	4060
	Rubidium (Rb)-Total (mg/kg)	23.4	20.5	15.5	17.0	19.9
	Rubidium (Rb)-Total (mg/kg ww)	4.90	4.10	3.17	3.54	4.14
	Selenium (Se)-Total (mg/kg)	2.16	1.70	1.61	1.59	2.37
	Selenium (Se)-Total (mg/kg ww)	0.452	0.340	0.331	0.332	0.493
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg ww)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	3080	3490	3540	3110	3150
	Sodium (Na)-Total (mg/kg ww)	646	700	724	647	655
	Strontium (Sr)-Total (mg/kg)	2.64	4.73	2.86	3.51	1.80
	Strontium (Sr)-Total (mg/kg ww)	0.553	0.948	0.587	0.732	0.374
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0142	0.0156	0.0085	0.0103	0.0152
	Thallium (Tl)-Total (mg/kg ww)	0.00298	0.00313	0.00174	0.00214	0.00316
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	0.11	<0.10	<0.10
	Tin (Sn)-Total (mg/kg ww)	<0.020	<0.020	0.022	<0.020	<0.020
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg ww)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	23.7	27.1	33.2	29.9	26.0
	Zinc (Zn)-Total (mg/kg ww)	4.97	5.43	6.81	6.24	5.40
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-41 Tissue 14-OCT-17 502-10	L2019410-42 Tissue 14-OCT-17 502-11	L2019410-43 Tissue 14-OCT-17 502-12	L2019410-44 Tissue 14-OCT-17 502-13	L2019410-45 Tissue 14-OCT-17 502-14
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.141	0.0657	0.0947	0.0771	0.0788
	Mercury (Hg)-Total (mg/kg wwt)	0.0297	0.0145	0.0216	0.0181	0.0187
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	0.25	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	0.056	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	11100	13100	9990	8790	8820
	Phosphorus (P)-Total (mg/kg wwt)	2330	2880	2280	2060	2100
	Potassium (K)-Total (mg/kg)	18300	18000	15700	16200	15500
	Potassium (K)-Total (mg/kg wwt)	3840	3960	3590	3810	3680
	Rubidium (Rb)-Total (mg/kg)	14.0	15.0	13.2	18.0	15.7
	Rubidium (Rb)-Total (mg/kg wwt)	2.95	3.30	3.00	4.22	3.74
	Selenium (Se)-Total (mg/kg)	2.27	2.18	2.13	2.71	2.99
	Selenium (Se)-Total (mg/kg wwt)	0.479	0.480	0.486	0.636	0.710
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg wwt)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	2550	2630	2480	2550	2610
	Sodium (Na)-Total (mg/kg wwt)	536	578	567	598	622
	Strontium (Sr)-Total (mg/kg)	2.17	6.60	2.06	1.18	1.23
	Strontium (Sr)-Total (mg/kg wwt)	0.457	1.45	0.471	0.277	0.293
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0143	0.0132	0.0131	0.0191	0.0183
	Thallium (Tl)-Total (mg/kg wwt)	0.00300	0.00290	0.00300	0.00447	0.00435
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Tin (Sn)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	0.020
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	24.9	38.8	29.8	29.0	25.5
	Zinc (Zn)-Total (mg/kg wwt)	5.23	8.53	6.79	6.79	6.07
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	0.046

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-46 Tissue 14-OCT-17 502-15	L2019410-47 Tissue 14-OCT-17 502-16	L2019410-48 Tissue 14-OCT-17 502-17	L2019410-49 Tissue 14-OCT-17 512-6	L2019410-50 Tissue 14-OCT-17 512-7
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.0786	0.0918	0.0927	0.0884	0.0908
	Mercury (Hg)-Total (mg/kg wwt)	0.0188	0.0214	0.0211	0.0200	0.0189
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.040	<0.040	<0.020	<0.040
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0080	<0.0080	<0.0080	<0.0040	<0.0080
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	10700	9260	12300	12100	10100
	Phosphorus (P)-Total (mg/kg wwt)	2570	2160	2810	2730	2110
	Potassium (K)-Total (mg/kg)	17900	17600	18700	18200	17500
	Potassium (K)-Total (mg/kg wwt)	4290	4090	4250	4110	3640
	Rubidium (Rb)-Total (mg/kg)	14.0	17.0	17.8	6.21	6.92
	Rubidium (Rb)-Total (mg/kg wwt)	3.36	3.96	4.05	1.40	1.44
	Selenium (Se)-Total (mg/kg)	1.79	2.50	2.42	1.30	1.30
	Selenium (Se)-Total (mg/kg wwt)	0.429	0.582	0.551	0.295	0.270
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg wwt)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	2310	2730	2730	2360	2730
	Sodium (Na)-Total (mg/kg wwt)	554	635	621	534	568
	Strontium (Sr)-Total (mg/kg)	2.31	1.20	5.18	2.89	3.41
	Strontium (Sr)-Total (mg/kg wwt)	0.554	0.281	1.18	0.654	0.711
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0170	0.0167	0.0213	0.0072	0.0072
	Thallium (Tl)-Total (mg/kg wwt)	0.00407	0.00390	0.00483	0.00164	0.00151
	Tin (Sn)-Total (mg/kg)	0.18	<0.10	<0.10	<0.10	<0.10
	Tin (Sn)-Total (mg/kg wwt)	0.044	<0.020	<0.020	<0.020	<0.020
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	20.9	25.0	25.7	23.3	30.9
	Zinc (Zn)-Total (mg/kg wwt)	5.02	5.82	5.84	5.26	6.44
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2019410-51 Tissue 14-OCT-17 512-8	L2019410-52 Tissue 14-OCT-17 512-9	L2019410-53 Tissue 14-OCT-17 512-10	L2019410-54 Tissue 14-OCT-17 512-11	L2019410-55 Tissue 14-OCT-17 512-12
Grouping	Analyte					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.111	0.101	0.160	0.0830	0.153
	Mercury (Hg)-Total (mg/kg wwt)	0.0231	0.0226	0.0299	0.0173	0.0318
	Molybdenum (Mo)-Total (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.020
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0080	<0.0080	<0.0080	<0.0080	<0.0040
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	0.96	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	<0.040	0.179	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	12100	9000	13800	10600	12300
	Phosphorus (P)-Total (mg/kg wwt)	2510	2010	2590	2210	2560
	Potassium (K)-Total (mg/kg)	19300	15700	19300	17000	20000
	Potassium (K)-Total (mg/kg wwt)	4000	3510	3610	3540	4160
	Rubidium (Rb)-Total (mg/kg)	12.6	6.95	14.5	8.59	8.27
	Rubidium (Rb)-Total (mg/kg wwt)	2.61	1.55	2.71	1.79	1.72
	Selenium (Se)-Total (mg/kg)	1.25	1.29	2.85	1.26	1.24
	Selenium (Se)-Total (mg/kg wwt)	0.259	0.287	0.533	0.262	0.257
	Silver (Ag)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Silver (Ag)-Total (mg/kg wwt)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sodium (Na)-Total (mg/kg)	2850	2600	3850	2600	2450
	Sodium (Na)-Total (mg/kg wwt)	591	580	722	541	509
	Strontium (Sr)-Total (mg/kg)	5.32	1.80	7.52	4.07	2.15
	Strontium (Sr)-Total (mg/kg wwt)	1.10	0.402	1.41	0.848	0.447
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0086	0.0084	0.0144	0.0064	0.0068
	Thallium (Tl)-Total (mg/kg wwt)	0.00178	0.00187	0.00269	0.00134	0.00141
	Tin (Sn)-Total (mg/kg)	<0.10	0.12	2.16	0.34	<0.10
	Tin (Sn)-Total (mg/kg wwt)	<0.020	0.028	0.404	0.071	<0.020
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	0.0030	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	0.00057	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	27.5	28.6	53.3	31.8	26.5
	Zinc (Zn)-Total (mg/kg wwt)	5.71	6.38	9.99	6.63	5.51
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L2019410-56 Tissue 14-OCT-17 512-13				
Grouping	Analyte						
TISSUE							
Metals	Mercury (Hg)-Total (mg/kg)	0.124					
	Mercury (Hg)-Total (mg/kg wwt)	0.0255					
	Molybdenum (Mo)-Total (mg/kg)	<0.020					
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040					
	Nickel (Ni)-Total (mg/kg)	0.21					
	Nickel (Ni)-Total (mg/kg wwt)	0.044					
	Phosphorus (P)-Total (mg/kg)	12500					
	Phosphorus (P)-Total (mg/kg wwt)	2570					
	Potassium (K)-Total (mg/kg)	20200					
	Potassium (K)-Total (mg/kg wwt)	4140					
	Rubidium (Rb)-Total (mg/kg)	11.0					
	Rubidium (Rb)-Total (mg/kg wwt)	2.26					
	Selenium (Se)-Total (mg/kg)	1.51					
	Selenium (Se)-Total (mg/kg wwt)	0.310					
	Silver (Ag)-Total (mg/kg)	<0.0050					
	Silver (Ag)-Total (mg/kg wwt)	<0.0010					
	Sodium (Na)-Total (mg/kg)	2510					
	Sodium (Na)-Total (mg/kg wwt)	516					
	Strontium (Sr)-Total (mg/kg)	2.35					
	Strontium (Sr)-Total (mg/kg wwt)	0.483					
	Tellurium (Te)-Total (mg/kg)	<0.020					
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040					
	Thallium (Tl)-Total (mg/kg)	0.0078					
	Thallium (Tl)-Total (mg/kg wwt)	0.00161					
	Tin (Sn)-Total (mg/kg)	<0.10					
	Tin (Sn)-Total (mg/kg wwt)	<0.020					
	Uranium (U)-Total (mg/kg)	<0.0020					
	Uranium (U)-Total (mg/kg wwt)	<0.00040					
	Vanadium (V)-Total (mg/kg)	<0.10					
	Vanadium (V)-Total (mg/kg wwt)	<0.020					
	Zinc (Zn)-Total (mg/kg)	21.9					
	Zinc (Zn)-Total (mg/kg wwt)	4.51					
	Zirconium (Zr)-Total (mg/kg)	0.41					
	Zirconium (Zr)-Total (mg/kg wwt)	0.085					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Zirconium (Zr)-Total	DUP-H	L2019410-14, -17, -18, -24, -49, -55, -56
Duplicate	Barium (Ba)-Total	DUP-H	L2019410-30, -31, -33, -37, -38, -39, -40, -41, -42, -46, -47, -48
Duplicate	Bismuth (Bi)-Total	DUP-H	L2019410-15, -16, -19, -20, -21, -22, -23, -25, -26, -27, -28, -29, -5, -6, -7, -8, -9
Duplicate	Calcium (Ca)-Total	DUP-H	L2019410-30, -31, -33, -37, -38, -39, -40, -41, -42, -46, -47, -48
Duplicate	Manganese (Mn)-Total	DUP-H	L2019410-15, -16, -19, -20, -21, -22, -23, -25, -26, -27, -28, -29, -5, -6, -7, -8, -9
Duplicate	Manganese (Mn)-Total	DUP-H	L2019410-30, -31, -33, -37, -38, -39, -40, -41, -42, -46, -47, -48
Duplicate	Strontium (Sr)-Total	DUP-H	L2019410-30, -31, -33, -37, -38, -39, -40, -41, -42, -46, -47, -48
Duplicate	Tin (Sn)-Total	DUP-H	L2019410-15, -16, -19, -20, -21, -22, -23, -25, -26, -27, -28, -29, -5, -6, -7, -8, -9
Duplicate	Zirconium (Zr)-Total	DUP-H	L2019410-14, -17, -18, -24, -49, -55, -56
Duplicate	Barium (Ba)-Total	DUP-H	L2019410-30, -31, -33, -37, -38, -39, -40, -41, -42, -46, -47, -48
Duplicate	Bismuth (Bi)-Total	DUP-H	L2019410-15, -16, -19, -20, -21, -22, -23, -25, -26, -27, -28, -29, -5, -6, -7, -8, -9
Duplicate	Calcium (Ca)-Total	DUP-H	L2019410-30, -31, -33, -37, -38, -39, -40, -41, -42, -46, -47, -48
Duplicate	Manganese (Mn)-Total	DUP-H	L2019410-15, -16, -19, -20, -21, -22, -23, -25, -26, -27, -28, -29, -5, -6, -7, -8, -9
Duplicate	Manganese (Mn)-Total	DUP-H	L2019410-30, -31, -33, -37, -38, -39, -40, -41, -42, -46, -47, -48
Duplicate	Strontium (Sr)-Total	DUP-H	L2019410-30, -31, -33, -37, -38, -39, -40, -41, -42, -46, -47, -48
Duplicate	Tin (Sn)-Total	DUP-H	L2019410-15, -16, -19, -20, -21, -22, -23, -25, -26, -27, -28, -29, -5, -6, -7, -8, -9
Certified Reference Material	Lead (Pb)-Total	MES	L2019410-14, -17, -18, -24, -49, -55, -56
Certified Reference Material	Zirconium (Zr)-Total	MES	L2019410-14, -17, -18, -24, -49, -55, -56
Certified Reference Material	Arsenic (As)-Total	MES	L2019410-1, -10, -11, -12, -13, -2, -3, -32, -34, -35, -36, -4, -43, -44, -45, -50, -51, -52, -53, -54
Certified Reference Material	Arsenic (As)-Total	MES	L2019410-15, -16, -19, -20, -21, -22, -23, -25, -26, -27, -28, -29, -5, -6, -7, -8, -9
Certified Reference Material	Arsenic (As)-Total	MES	L2019410-30, -31, -33, -37, -38, -39, -40, -41, -42, -46, -47, -48
Certified Reference Material	Lead (Pb)-Total	MES	L2019410-14, -17, -18, -24, -49, -55, -56
Certified Reference Material	Zirconium (Zr)-Total	MES	L2019410-14, -17, -18, -24, -49, -55, -56

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
AG-DRY-CCMS-N-VA	Tissue	Silver in Tissue by CRC ICPMS (DRY)	EPA 200.3/6020A
This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).			
Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.			
AG-DRY-MICR-HRMS-VA	Tissue	Silver in Tissue by HR-ICPMS Micro (DRY)	EPA 200.3/200.8
Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on dry weight basis.			

Reference Information

AG-WET-CCMS-N-VA Tissue Silver in Tissue by CRC ICPMS (WET) EPA 200.3/6020A

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

AG-WET-MICR-HRMS-VA Tissue Silver in Tissue by HR-ICPMS Micro (WET) EPA 200.3/200.8

Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on wet weight basis.

HG-DRY-CVAFS-N-VA Tissue Mercury in Tissue by CVAFS (DRY) EPA 200.3, EPA 245.7

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

HG-DRY-MICR-CVAF-VA Tissue Mercury in Tissue by CVAFS Micro (DRY) EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

HG-WET-CVAFS-N-VA Tissue Mercury in Tissue by CVAFS (WET) EPA 200.3, EPA 245.7

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

HG-WET-MICR-CVAF-VA Tissue Mercury in Tissue by CVAFS Micro (WET) EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

MET-DRY-CCMS-N-VA Tissue Metals in Tissue by CRC ICPMS (DRY) EPA 200.3/6020A

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MET-DRY-MICR-HRMS-VA Tissue Metals in Tissue by HR-ICPMS Micro (DRY) EPA 200.3/200.8

Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on dry weight basis.

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MET-WET-CCMS-N-VA Tissue Metals in Tissue by CRC ICPMS (WET) EPA 200.3/6020A

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MET-WET-MICR-HRMS-VA Tissue Metals in Tissue by HR-ICPMS Micro (WET) EPA 200.3/200.8

Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on wet weight basis.

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals.

Reference Information

Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MOISTURE-MICR-VA Tissue Moisture in Tissue Puget Sound WQ Authority, Apr 1997

This analysis is carried out gravimetrically by drying the sample at <60 deg. C.

MOISTURE-TISS-VA Tissue % Moisture in Tissues Puget Sound WQ Authority, Apr 1997

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

1	2	3	4	5

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Report Format / Distribution				Service Requested (Rush for routine analysis subject to availability)																											
☒ Standard ☐ Other ☒ PDF ☒ Excel ☒ Digital ☐ Other				☒ Regular (Standard Turnaround Times - Business Days) ☐ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT ☐ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT ☐ Same Day or Weekend Emergency - Contact ALS to Confirm TAT																											
Invoicing Morinville Ermd Adelaide Centre 10 Adelaide St. W. Suite 2010; Toronto, ON				Email 1: tsneweve.morinville@erm.com Email 2: kpcina.boughton@erm.com Email 3: kathy.chambers@erm.com																											
Fax: Time as Report ☒ Yes ☐ No Invoice with Ret ☒ Yes ☒ No RM Accounts Payables (ERM.CanadaPayables@ 11th Floor, 1111 W. Hastings St.; Vancouver, V6E 4B9-9r Fax:				Analysis Request Please indicate below Filtered, Preserved or both (F, P, F/P)																											
Order # _____ Sample Identification (This description will appear on the report)				Date (dd-mm-yy) Time (hh:mm)				Sample Type				Percent Moisture Standard CCMS Metals Mercury Silver				Number of Containers															
12-6 12-7 12-8 12-9 12-10 12-11 12-12 12-13				14 OCT 12				Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue				X X X X X X X X X X X				X X X X X X X X X X X				X X X X X X X X X X X				X X X X X X X X X X X				1 1 1 1 1 1 1 1 1 1 1			
Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc.) / Hazardous Details																															
KEEP FROZEN. HOLD FOR ANALYSIS UNTIL FURTHER INSTRUCTIONS RECEIVED																															
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab. Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.																															
AT RELEASE (client use)				SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)																							
Date (dd/mm/yyyy) Time (hh:mm) Received by: TP				Date: Nov 7 Time: 22:50 Temperature: 1 °C				Verified by:				Date: Time: Observations: Yes / No? If Yes add SIF																			

GENF 18.01 Front



L2019410-COFC

Environmental

Page 4 of 5

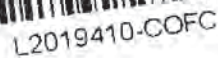
Report Format / Distribution ☒ Standard ☐ Other ☒ PDF ☒ Excel ☐ Digital		Service Requested (Rush for routine analysis subject to availability) ☒ Regular (Standard Turnaround Times - Business Days) ☐ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT ☐ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT ☐ Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
Genevieve Morinville 10 Adelaide St. W., Suite 2010, Toronto, ON 7-288-89 Fax:		Email 1: genevieve.morinville@erm.com Email 2: korrina.houghton@erm.com Email 3: kathy.chambers@erm.com	
Client / Project Information Job #: 0403488-0008 PO / AFE:		Analysis Request Please indicate below Filtered, Preserved or both (F, P, F/P)	
Counts Payables (ERM.CanadaPayables@alsnlab.com) 11th Floor, 1111 W. Hastings St., Vancouver, BC 4-689-98 Fax:		Quote #: ALS Contact: Amber Springer Sampler:	
Sample Identification (This description will appear on the report)		Number of Containers	
Date (dd-mm-yy) 09-10 09-11 09-12 09-13 02-10 02-11 02-12 02-13 02-14 02-15 02-16 02-17	Time (hh:mm) 13:00 14:00	Sample Type Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue Tissue	Percent Moisture Standard CCMS Metals Mercury Silver
Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details KEEP FROZEN. HOLD FOR ANALYSIS UNTIL FURTHER INSTRUCTIONS RECEIVED Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab. Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.		SHIPMENT VERIFICATION (lab use only) Date: Time: Temperature: Verified by: Date: Time: Observations: Yes / No? If Yes add SIF	

GENF 18.01 Front



L2019410-COFC

GENF 18.01 From



GENF 18.01 Front



Environmental

Page 1 of 5

Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)	
☒ Standard ☐ Other ☒ PDF ☐ Excel ☐ Digital ☐ Other		☒ Regular (Standard Turnaround Time - Business Days) ☐ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT ☐ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT ☐ Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
Genevieve Morinville Richmond Adelaide Centre 20 Adelaide St. W. Suite 2010, Toronto, ON 47-288-789 Fax:		Email 1: genevieve.morinville@erm.com Email 2: korina.houghton@erm.com Email 3: kathy.chambers@erm.com	
Same as Report ☒ Yes ☐ No Invoice with Receipt ☒ Yes ☐ No RM Accounts Payables (ERM Canada Payables@)		Client / Project Information Job #: 0403488-0008 PO / AFE: LSD: 5th Floor, 1111 W. Hastings St., Vancouver, V6E 4R9 Fax: Order # (only)	
Sample Identification (This description will appear on the report)		Please indicate below Filtered, Preserved or both (F, P, F/P)	
Date (dd-mm-yy)	Time (hh:mm)	Sample Type	Number of Containers
11 OCT		Tissue	1
		Tissue	1
		Tissue	1
		Tissue	1
		Tissue	1
		Tissue	1
		Tissue	1
		Tissue	1
12 OCT		Tissue	1
		Tissue	1
		Tissue	1
		Tissue	1

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/VAB Tier 1 - Natural, etc) / Hazardous Details

KEEP FROZEN. HOLD FOR ANALYSIS UNTIL FURTHER INSTRUCTIONS RECEIVED

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)		SHIPMENT VERIFICATION (lab use only)	
Date (dd-mm-yy)	Time (hh:mm)	Received by:	Date:	Time:	Temperature:
		TP	Nov 7	22:50	1 °C
		Verified by:	Date:	Time:	Observations:
					Yes / No? If Yes add SIF

GENF 18.01 Front





Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Richmond Adelaide Centre
120 Adelaide St. W., Suite 2010
Toronto, ON M5H 1T1

Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Revision 1
Version FINAL

Client Phone 416-646-3608

Certificate of Analysis

Lab Work Order # L2019410
Project P.O. #
Job Reference 0403488-0008
Legal Site Description
C of C Numbers 1
2
3
4
5

Case Narrative/Comments

A handwritten signature in black ink that reads "Amber Springer".

Amber Springer, B.Sc
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Sample Summary L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Sample Details

ALS Sample ID	Client Sample ID	Matrix	Date Sampled
L2019410-1	505-8	Tissue	11-Oct-17
L2019410-2	505-9	Tissue	11-Oct-17
L2019410-3	505-10	Tissue	11-Oct-17
L2019410-4	505-11	Tissue	11-Oct-17
L2019410-5	505-12	Tissue	11-Oct-17
L2019410-6	505-13	Tissue	11-Oct-17
L2019410-7	505-14	Tissue	11-Oct-17
L2019410-8	505-15	Tissue	11-Oct-17
L2019410-9	501-11	Tissue	11-Oct-17
L2019410-10	501-12	Tissue	12-Oct-17
L2019410-11	501-13	Tissue	12-Oct-17
L2019410-12	501-14	Tissue	12-Oct-17
L2019410-13	501-15	Tissue	12-Oct-17
L2019410-14	501-16	Tissue	12-Oct-17
L2019410-15	501-17	Tissue	12-Oct-17
L2019410-16	501-18	Tissue	12-Oct-17
L2019410-17	511-10	Tissue	12-Oct-17
L2019410-18	511-11	Tissue	12-Oct-17
L2019410-19	511-12	Tissue	12-Oct-17
L2019410-20	511-13	Tissue	12-Oct-17
L2019410-21	511-14	Tissue	12-Oct-17
L2019410-22	511-15	Tissue	12-Oct-17
L2019410-23	511-16	Tissue	12-Oct-17
L2019410-24	511-17	Tissue	12-Oct-17
L2019410-25	508-5	Tissue	13-Oct-17
L2019410-26	508-6	Tissue	13-Oct-17
L2019410-27	508-7	Tissue	13-Oct-17
L2019410-28	508-8	Tissue	13-Oct-17
L2019410-29	508-9	Tissue	13-Oct-17
L2019410-30	508-10	Tissue	13-Oct-17
L2019410-31	508-11	Tissue	13-Oct-17
L2019410-32	508-12	Tissue	13-Oct-17
L2019410-33	509-6	Tissue	13-Oct-17
L2019410-34	509-7	Tissue	13-Oct-17
L2019410-35	509-8	Tissue	13-Oct-17
L2019410-36	509-9	Tissue	13-Oct-17
L2019410-37	509-10	Tissue	13-Oct-17
L2019410-38	509-11	Tissue	13-Oct-17
L2019410-39	509-12	Tissue	13-Oct-17
L2019410-40	509-13	Tissue	13-Oct-17

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Sample Summary L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Sample Details

ALS Sample ID	Client Sample ID	Matrix	Date Sampled
L2019410-41	502-10	Tissue	14-Oct-17
L2019410-42	502-11	Tissue	14-Oct-17
L2019410-43	502-12	Tissue	14-Oct-17
L2019410-44	502-13	Tissue	14-Oct-17
L2019410-45	502-14	Tissue	14-Oct-17
L2019410-46	502-15	Tissue	14-Oct-17
L2019410-47	502-16	Tissue	14-Oct-17
L2019410-48	502-17	Tissue	14-Oct-17
L2019410-49	512-6	Tissue	14-Oct-17
L2019410-50	512-7	Tissue	14-Oct-17
L2019410-51	512-8	Tissue	14-Oct-17
L2019410-52	512-9	Tissue	14-Oct-17
L2019410-53	512-10	Tissue	14-Oct-17
L2019410-54	512-11	Tissue	14-Oct-17
L2019410-55	512-12	Tissue	14-Oct-17
L2019410-56	512-13	Tissue	14-Oct-17

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results Summary L2019410

Job Reference	0403488-0008
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received	7-Nov-2017 22:49
Report Date	31-Jan-2018 15:34
Report Version	1

Client Sample ID			505-8	505-9	505-10	505-11	505-12	505-13	505-14	505-15	501-11	501-12	501-13	501-14	501-15	501-16	501-17	501-18	511-10	511-11	511-12
Date Sampled			11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017
Time Sampled			0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID			L2019410-1	L2019410-2	L2019410-3	L2019410-4	L2019410-5	L2019410-6	L2019410-7	L2019410-8	L2019410-9	L2019410-10	L2019410-11	L2019410-12	L2019410-13	L2019410-14	L2019410-15	L2019410-16	L2019410-17	L2019410-18	L2019410-19
Parameter	Lowest Detection Limit	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests (Tissue)																					
% Moisture	0.50	%	78.0	78.1	78.0	77.7	77.9	78.2	78.1	78.6	77.8	76.4	76.6	76.2	77.0	78.3	78.1	78.0	77.8	79.1	76.6
Metals (Tissue)																					
Aluminum (Al)-Total	2.0	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<5.0	<2.0	<2.0	<5.0
Aluminum (Al)-Total	0.40	mg/kg ww	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.40	<1.0	<1.0	<0.40	<0.40	<1.0
Antimony (Sb)-Total	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Antimony (Sb)-Total	0.0020	mg/kg ww	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0021	<0.0020	<0.0020
Arsenic (As)-Total	0.020	mg/kg	0.092	0.167	0.080	0.092	0.127	0.078	0.092	0.452	0.070	0.127	0.180	0.198	0.089	0.095	0.192	0.120	0.203	0.196	0.113
Arsenic (As)-Total	0.0040	mg/kg ww	0.0202	0.0364	0.0176	0.0206	0.0280	0.0171	0.0203	0.0966	0.0155	0.0300	0.0421	0.0472	0.0205	0.0206	0.0422	0.0265	0.0451	0.0409	0.0265
Barium (Ba)-Total	0.050	mg/kg	1.49	0.685	1.73	0.606	0.565	1.62	1.14	0.824	1.04	0.896	0.969	0.571	0.463	0.449	0.838	0.596	0.803	2.46	1.58
Barium (Ba)-Total	0.010	mg/kg ww	0.327	0.150	0.381	0.136	0.125	0.352	0.250	0.176	0.230	0.211	0.227	0.136	0.106	0.097	0.184	0.131	0.179	0.513	0.368
Beryllium (Be)-Total	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)-Total	0.0020	mg/kg ww	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.050	<0.010	<0.010	0.772	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total	0.0020	mg/kg ww	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0111	<0.0020	<0.0020	0.184	<0.0020	0.0022	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Boron (B)-Total	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Boron (B)-Total	0.20	mg/kg ww	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium (Cd)-Total	0.0050	mg/kg	0.063	0.011	0.039	0.024	0.029	0.072	0.081	0.021	0.018	<0.010	<0.010	<0.010	<0.010	0.0051	<0.010	<0.010	0.0157	0.0133	<0.010
Cadmium (Cd)-Total	0.0010	mg/kg ww	0.0139	0.0023	0.0086	0.0054	0.0064	0.0156	0.0177	0.0044	0.0041	0.0023	<0.0020	<0.0020	<0.0020	0.0011	<0.0020	<0.0020	0.0035	0.0028	<0.0020
Calcium (Ca)-Total	20	mg/kg	4310	4010	6500	2530	2120	3990	4900	2390	4020	4160	5570	2530	3170	2330	2500	3720	3560	4700	5600
Calcium (Ca)-Total	4.0	mg/kg ww	946	878	1430	566	468	868	1070	511	890	981	1300	604	729	507	547	819	792	981	1310
Cesium (Cs)-Total	0.0050	mg/kg	0.438	0.417	0.384	0.447	0.421	0.464	0.402	0.367	0.869	1.25	1.03	1.44	0.930	0.944	1.01	1.33	0.0326	0.0228	0.0443
Cesium (Cs)-Total	0.0010	mg/kg ww	0.0961	0.0912	0.0845	0.0998	0.0931	0.101	0.0882	0.0785	0.193	0.294	0.241	0.343	0.214	0.205	0.221	0.292	0.0073	0.0048	0.0103
Chromium (Cr)-Total	0.050	mg/kg	0.22	<0.20	0.60	0.27	0.25	<0.20	0.24	<0.20	0.36	<0.20	<0.20	<0.20	<0.20	0.157	<0.20	<0.20	0.140	0.131	<0.20
Chromium (Cr)-Total	0.010	mg/kg ww	0.048	<0.040	0.131	0.060	0.054	<0.040	0.052	<0.040	0.079	<0.040	<0.040	0.044	<0.040	0.034	0.040	<0.040	0.031	0.027	<0.040
Cobalt (Co)-Total	0.020	mg/kg	0.198	0.118	0.088	0.178	0.219	0.168	0.179	0.109	0.072	0.069	0.067	0.048	0.035	0.047	0.092	0.070	0.046	0.044	0.028
Cobalt (Co)-Total	0.0040	mg/kg ww	0.0435	0.0258	0.0194	0.0398	0.0485	0.0365	0.0393	0.0233	0.0161	0.0162	0.0157	0.0114	0.0079	0.0102	0.0201	0.0154	0.0103	0.0093	0.0066
Copper (Cu)-Total	0.10	mg/kg	2.22	1.45	1.13	2.05	1.61	1.27	1.68	0.94	1.58	1.46	1.45	1.86	1.60	1.82	1.87	1.64	1.49	1.70	1.19
Copper (Cu)-Total	0.020	mg/kg ww	0.487	0.317	0.248	0.459	0.356	0.277	0.368	0.201	0.350	0.345	0.341	0.444	0.368	0.394	0.410	0.362	0.331	0.355	0.278
Iron (Fe)-Total	3.0	mg/kg	25.4	13.8	19.3	20.9	15.0	16.3	19.8	11.7	15.7	14.3	13.5	20.5	17.5	16.3	19.9	14.0	18.0	18.8	13.4
Iron (Fe)-Total	0.60	mg/kg ww	5.6	3.0	4.3	4.7	3.3	3.5	4.3	2.5	3.5	3.4	3.2	4.9	4.0	3.54	4.4	3.1	4.00	3.93	3.1
Lead (Pb)-Total	0.020	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.020	<0.050	<0.050	<0.020	<0.020	<0.050
Lead (Pb)-Total	0.0040	mg/kg ww	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0040	<0.010	<0.010	<0.0040	<0.0040	<0.010
Lithium (Li)-Total	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Lithium (Li)-Total	0.10	mg/kg ww	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium (Mg)-Total	2.0	mg/kg	1060	1190	1190	1080	1180	1190	1180	1190	1250	1110	1200	1140	1100	1280	1150	1220	1390	1380	1280
Magnesium (Mg)-Total	0.40	mg/kg ww	233	260	263	242	262	259	258	254	277	262	281	273	253	277	252	268	309	289	299
Manganese (Mn)-Total	0.050	mg/kg	1.19	1.21	2.60	0.951	1.05	2.55	2.21	0.978	2.01	1.55	1.61	5.91	1.35	0.854	0.998	1.25	1.87	3.35	1.85
Manganese (Mn)-Total	0.010	mg/kg ww	0.261	0.265	0.571	0.213	0.233	0.556	0.485	0.209	0.446	0.366	0.377	1.41	0.310	0.185	0.219	0.276	0.415	0.700	0.432
Mercury (Hg)-Total	0.0050	mg/kg	0.0906	0.122	0.110	0.112	0.0859	0.0790	0.0876	0.0984	0.0621	0.0658	0.0822	0.0835	0.0818	0.0965	0.0917	0.0548	0.0884	0.112	0.0417
Mercury (Hg)-Total	0.0010	mg/kg ww	0.0199	0.0266	0.0242	0.0251	0.0190	0.0172	0.0192	0.0210	0.0138	0.0155	0.0193	0.0199	0.0188	0.0209	0.0201	0.0121	0.0197	0.0234	0.0097
Molybdenum (Mo)-Total	0.020	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.020	<0.040	<0.040	<0.020	<0.020	<0.040
Molybdenum (Mo)-Total	0.0040	mg/kg ww	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0040	<0.0080	<0.0080	<0.0040	<0.0040	<0.0080
Nickel (Ni)-Total	0.20	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel (Ni)-Total	0.040	mg/kg ww	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.042	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Phosphorus (P)-Total	10	mg/kg	10600	10800	11500	9790	10800	11400	12000	10000	11500	10400	11700	9720	9360	11500	10300	11000	13000	14100	12500
Phosphorus (P)-Total	2.0	mg/kg ww	2330	2360	2520	2190	2400	2470	2630	2140	2550	2450	2750	2320	2150	2500	2270	2420	2880	2950	2920

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results Summary L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID			511-13	511-14	511-15	511-16	511-17	508-5	508-6	508-7	508-8	508-9	508-10	508-11	508-12	509-6	509-7	509-8	509-9	509-10	509-11
Date Sampled			12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017
Time Sampled			0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID			L2019410-20	L2019410-21	L2019410-22	L2019410-23	L2019410-24	L2019410-25	L2019410-26	L2019410-27	L2019410-28	L2019410-29	L2019410-30	L2019410-31	L2019410-32	L2019410-33	L2019410-34	L2019410-35	L2019410-36	L2019410-37	L2019410-38
Parameter	Lowest Detection Limit	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests (Tissue)																					
% Moisture	0.50	%	78.9	78.4	79.0	77.7	78.5	78.9	79.2	79.5	80.1	80.1	80.9	79.3	77.6	79.7	79.3	79.0	79.0	80.0	79.5
Metals (Tissue)																					
Aluminum (Al)-Total	2.0	mg/kg	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<5.0	7.4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Aluminum (Al)-Total	0.40	mg/kg ww	<1.0	<1.0	<1.0	<1.0	0.42	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Antimony (Sb)-Total	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Antimony (Sb)-Total	0.0020	mg/kg ww	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic (As)-Total	0.020	mg/kg	0.128	0.104	0.109	0.130	0.182	0.052	0.068	0.253	0.097	0.086	0.109	0.069	0.087	0.072	0.078	0.141	0.101	0.075	0.087
Arsenic (As)-Total	0.0040	mg/kg ww	0.0269	0.0225	0.0230	0.0290	0.0392	0.0109	0.0141	0.0519	0.0192	0.0171	0.0207	0.0142	0.0194	0.0147	0.0162	0.0297	0.0211	0.0150	0.0177
Barium (Ba)-Total	0.050	mg/kg	1.40	1.15	1.32	0.894	1.59	3.19	1.42	1.21	0.768	2.60	1.00	1.18	0.794	1.12	1.00	0.628	1.01	1.68	1.26
Barium (Ba)-Total	0.010	mg/kg ww	0.295	0.248	0.278	0.200	0.342	0.672	0.296	0.248	0.153	0.518	0.192	0.245	0.178	0.228	0.208	0.132	0.212	0.336	0.259
Beryllium (Be)-Total	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)-Total	0.0020	mg/kg ww	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total	0.0020	mg/kg ww	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0027	<0.0020	<0.0020	<0.0020	<0.0020
Boron (B)-Total	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Boron (B)-Total	0.20	mg/kg ww	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	0.27	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium (Cd)-Total	0.0050	mg/kg	0.012	0.018	0.017	<0.010	0.0119	0.042	0.017	0.019	0.024	0.058	0.020	0.119	<0.010	0.053	0.021	0.011	0.043	0.021	0.012
Cadmium (Cd)-Total	0.0010	mg/kg ww	0.0025	0.0038	0.0036	<0.0020	0.0026	0.0088	0.0035	0.0038	0.0047	0.0116	0.0037	0.0245	<0.0020	0.0108	0.0044	0.0023	0.0090	0.0042	0.0025
Calcium (Ca)-Total	20	mg/kg	3720	4250	4110	1920	5080	10300	4350	2470	1880	6230	2160	4570	3580	3520	2500	2880	3240	5980	3130
Calcium (Ca)-Total	4.0	mg/kg ww	782	916	865	429	1090	2160	905	506	373	1240	412	943	802	712	518	606	678	1200	641
Cesium (Cs)-Total	0.0050	mg/kg	0.0311	0.0280	0.0261	0.0170	0.0281	0.0701	0.0859	0.179	0.0828	0.0877	0.0798	0.0868	0.106	0.112	0.254	0.117	0.164	0.173	0.112
Cesium (Cs)-Total	0.0010	mg/kg ww	0.0066	0.0060	0.0055	0.0038	0.0060	0.0148	0.0179	0.0367	0.0165	0.0175	0.0152	0.0179	0.0237	0.0226	0.0527	0.0245	0.0343	0.0346	0.0230
Chromium (Cr)-Total	0.050	mg/kg	<0.20	0.48	0.33	<0.20	0.063	<0.20	0.31	0.42	0.28	0.32	<0.20	<0.20	<0.20	0.26	0.57	<0.20	<0.20	0.26	0.24
Chromium (Cr)-Total	0.010	mg/kg ww	<0.040	0.103	0.070	<0.040	0.014	<0.040	0.066	0.086	0.056	0.064	<0.040	<0.040	<0.040	0.052	0.118	<0.040	<0.040	0.051	0.049
Cobalt (Co)-Total	0.020	mg/kg	0.054	0.038	0.057	0.039	0.026	0.061	0.041	0.090	0.141	0.398	0.163	0.182	0.040	0.100	0.077	0.094	0.176	0.185	0.074
Cobalt (Co)-Total	0.0040	mg/kg ww	0.0113	0.0083	0.0119	0.0086	0.0055	0.0129	0.0085	0.0184	0.0281	0.0792	0.0310	0.0376	0.0090	0.0202	0.0160	0.0197	0.0369	0.0370	0.0152
Copper (Cu)-Total	0.10	mg/kg	1.33	1.35	1.58	1.29	1.63	1.07	1.58	1.49	0.92	1.68	1.55	1.62	1.15	1.58	1.27	1.17	1.31	1.63	1.92
Copper (Cu)-Total	0.020	mg/kg ww	0.281	0.290	0.333	0.289	0.350	0.224	0.328	0.305	0.183	0.335	0.295	0.335	0.258	0.320	0.264	0.245	0.274	0.325	0.394
Iron (Fe)-Total	3.0	mg/kg	16.3	18.0	19.6	14.0	17.8	13.6	16.6	26.7	20.4	34.7	20.0	23.0	14.2	20.9	14.1	27.9	17.0	21.0	19.8
Iron (Fe)-Total	0.60	mg/kg ww	3.4	3.9	4.1	3.1	3.83	2.9	3.4	5.5	4.0	6.9	3.8	4.7	3.2	4.2	2.9	5.9	3.6	4.2	4.1
Lead (Pb)-Total	0.020	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lead (Pb)-Total	0.0040	mg/kg ww	<0.010	<0.010	<0.010	<0.010	<0.0040	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lithium (Li)-Total	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Lithium (Li)-Total	0.10	mg/kg ww	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium (Mg)-Total	2.0	mg/kg	1250	1340	1270	1120	1370	1210	1340	1270	1310	1390	1170	1130	1320	1250	1230	1270	1480	1330	
Magnesium (Mg)-Total	0.40	mg/kg ww	264	290	268	250	295	255	279	261	252	260	265	241	253	268	258	258	265	297	272
Manganese (Mn)-Total	0.050	mg/kg	2.25	4.83	3.43	1.59	2.60	6.04	3.34	2.53	1.53	5.70	1.98	2.13	1.62	1.95	1.57	2.01	2.25	3.29	2.06
Manganese (Mn)-Total	0.010	mg/kg ww	0.475	1.04	0.722	0.355	0.560	1.27	0.696	0.519	0.305	1.13	0.378	0.441	0.363	0.396	0.326	0.422	0.472	0.658	0.421
Mercury (Hg)-Total	0.0050	mg/kg	0.0934	0.0664	0.0821	0.305	0.246	0.0650	0.102	0.0972	0.0844	0.0646	0.101	0.0656	0.0845	0.0812	0.0807	0.0741	0.0767	0.118	0.0733
Mercury (Hg)-Total	0.0010	mg/kg ww	0.0197	0.0143	0.0173	0.0681	0.0529	0.0137	0.0212	0.0199	0.0168	0.0129	0.0194	0.0136	0.0189	0.0165	0.0167	0.0156	0.0161	0.0236	0.0150
Molybdenum (Mo)-Total	0.020	mg/kg	<0.040	0.088	<0.040	<0.040	<0.020	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Molybdenum (Mo)-Total	0.0040	mg/kg ww	<0.0080	0.0190	<0.0080	<0.0080	<0.0040	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Nickel (Ni)-Total	0.20	mg/kg	<0.20	<0.20	0.21	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.25	<0.20	<0.20	<0.20	<0.20
Nickel (Ni)-Total	0.040	mg/kg ww	<0.040	<0.040	0.045	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.052	<0.040	<0.040	<0.040	<0.040
Phosphorus (P)-Total	10	mg/kg	11500	12300	11800	10200	13000	14000	12100	11300	11100	13200	11500	11900	10500	11400	10200	10400	10800	13400	11700
Phosphorus (P)-Total	2.0	mg/kg ww	2410	2660	2490	2270	2800	2940	2520	2310	2200	2630	2200	2460	2360	2320	2110	2180	2260	2690	2410

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results Summary L2019410

Job Reference	0403488-0008
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received	7-Nov-2017 22:49
Report Date	31-Jan-2018 15:34
Report Version	1

Client Sample ID			509-12	509-13	502-10	502-11	502-12	502-13	502-14	502-15	502-16	502-17	512-6	512-7	512-8	512-9	512-10	512-11	512-12	512-13
Date Sampled			13-Oct-2017	13-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017
Time Sampled			0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID			L2019410-39	L2019410-40	L2019410-41	L2019410-42	L2019410-43	L2019410-44	L2019410-45	L2019410-46	L2019410-47	L2019410-48	L2019410-49	L2019410-50	L2019410-51	L2019410-52	L2019410-53	L2019410-54	L2019410-55	L2019410-56
Parameter	Lowest Detection Limit	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests (Tissue)																				
% Moisture	0.50	%	79.2	79.2	78.9	78.0	77.2	76.5	76.2	76.0	76.7	77.3	77.4	79.2	79.2	77.7	81.3	79.2	79.2	79.4
Metals (Tissue)																				
Aluminum (Al)-Total	2.0	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<5.0	<5.0	<5.0	21.8	6.6	3.7	2.7
Aluminum (Al)-Total	0.40	mg/kg ww	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.40	<1.0	<1.0	<1.0	4.1	1.4	0.76	0.55
Antimony (Sb)-Total	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Antimony (Sb)-Total	0.0020	mg/kg ww	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic (As)-Total	0.020	mg/kg	0.114	0.060	0.101	0.117	0.130	0.158	0.220	0.206	0.226	0.164	0.157	0.166	0.754	0.320	0.341	0.157	0.482	0.225
Arsenic (As)-Total	0.0040	mg/kg ww	0.0237	0.0125	0.0213	0.0256	0.0296	0.0370	0.0523	0.0494	0.0527	0.0373	0.0355	0.0346	0.156	0.0714	0.0639	0.0327	0.100	0.0462
Barium (Ba)-Total	0.050	mg/kg	1.30	0.818	0.596	1.53	0.468	0.301	0.400	0.744	0.599	0.897	0.778	1.45	2.07	0.816	6.63	2.09	0.710	0.711
Barium (Ba)-Total	0.010	mg/kg ww	0.270	0.170	0.125	0.337	0.107	0.071	0.095	0.178	0.140	0.204	0.176	0.301	0.430	0.182	1.24	0.436	0.148	0.146
Beryllium (Be)-Total	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)-Total	0.0020	mg/kg ww	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total	0.0020	mg/kg ww	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Boron (B)-Total	1.0	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Boron (B)-Total	0.20	mg/kg ww	0.21	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium (Cd)-Total	0.0050	mg/kg	0.018	0.051	<0.010	0.013	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.0050	0.016	<0.010	<0.010	0.049	<0.010	0.0081	0.0172
Cadmium (Cd)-Total	0.0010	mg/kg ww	0.0037	0.0106	<0.0020	0.0028	<0.0020	<0.0020	0.0024	<0.0020	<0.0020	<0.0020	<0.0010	0.0033	<0.0020	<0.0020	0.0092	0.0020	0.0017	0.0035
Calcium (Ca)-Total	20	mg/kg	4040	2230	2910	7280	2860	2030	1840	2510	1600	5980	2990	3990	4760	2080	8960	3550	2250	2760
Calcium (Ca)-Total	4.0	mg/kg ww	842	464	613	1600	653	476	438	601	374	1360	677	831	987	465	1680	741	468	568
Cesium (Cs)-Total	0.0050	mg/kg	0.122	0.131	0.627	0.664	0.632	0.804	0.762	0.669	0.894	0.835	0.0359	0.0303	0.0459	0.0251	0.0552	0.0331	0.0350	0.0514
Cesium (Cs)-Total	0.0010	mg/kg ww	0.0255	0.0273	0.132	0.146	0.144	0.189	0.181	0.160	0.208	0.190	0.0081	0.0063	0.0095	0.0056	0.0103	0.0069	0.0073	0.0106
Chromium (Cr)-Total	0.050	mg/kg	0.25	<0.20	0.24	0.31	<0.20	<0.20	<0.20	<0.20	0.29	<0.20	0.107	<0.20	<0.20	<0.20	0.44	<0.20	0.103	0.187
Chromium (Cr)-Total	0.010	mg/kg ww	0.051	<0.040	0.050	0.068	<0.040	0.040	<0.040	<0.040	0.068	<0.040	0.024	<0.040	<0.040	0.042	0.083	<0.040	0.021	0.038
Cobalt (Co)-Total	0.020	mg/kg	0.134	0.184	0.047	0.084	0.044	0.075	0.054	0.041	0.044	0.098	0.027	0.086	0.044	0.070	0.345	0.097	0.058	0.034
Cobalt (Co)-Total	0.0040	mg/kg ww	0.0279	0.0383	0.0099	0.0185	0.0100	0.0175	0.0129	0.0099	0.0104	0.0222	0.0061	0.0180	0.0091	0.0156	0.0646	0.0202	0.0120	0.0070
Copper (Cu)-Total	0.10	mg/kg	1.64	1.97	1.93	1.88	1.62	2.26	2.16	1.41	2.26	1.55	1.67	0.99	1.04	1.46	1.37	0.98	1.73	1.59
Copper (Cu)-Total	0.020	mg/kg ww	0.342	0.409	0.407	0.415	0.370	0.531	0.515	0.339	0.527	0.352	0.378	0.206	0.216	0.325	0.257	0.205	0.360	0.326
Iron (Fe)-Total	3.0	mg/kg	17.6	26.0	20.3	24.7	18.1	18.8	20.7	14.7	21.3	15.9	16.3	10.1	10.4	15.3	80.2	17.7	16.0	21.6
Iron (Fe)-Total	0.60	mg/kg ww	3.7	5.4	4.3	5.4	4.1	4.4	4.9	3.5	5.0	3.6	3.69	2.1	2.2	3.4	15.0	3.7	3.33	4.45
Lead (Pb)-Total	0.020	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.020	<0.020
Lead (Pb)-Total	0.0040	mg/kg ww	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0040	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0040	<0.0040
Lithium (Li)-Total	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Lithium (Li)-Total	0.10	mg/kg ww	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium (Mg)-Total	2.0	mg/kg	1240	1270	1250	1330	1130	988	1010	1230	1110	1280	1310	1120	1280	1040	1290	1180	1300	1330
Magnesium (Mg)-Total	0.40	mg/kg ww	259	265	263	293	258	232	241	295	259	291	297	233	265	233	241	247	270	273
Manganese (Mn)-Total	0.050	mg/kg	2.44	2.00	1.49	2.74	1.30	0.682	0.876	1.61	0.904	2.36	1.17	2.95	6.30	1.73	9.64	3.49	1.76	1.80
Manganese (Mn)-Total	0.010	mg/kg ww	0.509	0.415	0.314	0.604	0.297	0.160	0.208	0.386	0.211	0.536	0.264	0.614	1.31	0.387	1.81	0.726	0.366	0.371
Mercury (Hg)-Total	0.0050	mg/kg	0.0762	0.0886	0.141	0.0657	0.0947	0.0771	0.0788	0.0786	0.0918	0.0927	0.0884	0.0908	0.111	0.101	0.160	0.0830	0.153	0.124
Mercury (Hg)-Total	0.0010	mg/kg ww	0.0159	0.0184	0.0297	0.0145	0.0216	0.0181	0.0187	0.0188	0.0214	0.0211	0.0200	0.0189	0.0231	0.0226	0.0299	0.0173	0.0318	0.0255
Molybdenum (Mo)-Total	0.020	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.020	<0.040	<0.040	<0.040	<0.040	<0.040	<0.020	<0.020
Molybdenum (Mo)-Total	0.0040	mg/kg ww	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0040	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0040	<0.0040
Nickel (Ni)-Total	0.20	mg/kg	<0.20	<0.20	<0.20	0.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.96	<0.20	<0.20	0.21
Nickel (Ni)-Total	0.040	mg/kg ww	<0.040	<0.040	<0.040	0.056	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.179	<0.040	<0.040	0.044
Phosphorus (P)-Total	10	mg/kg	11300	11000	11100	13100	9990	8790	8820	10700	9260	12300	12100	10100	12100	9000	13800	10600	12300	12500
Phosphorus (P)-Total	2.0	mg/kg ww	2370	2290	2330	2880	2280	2060	2100	2570	2160	2810	2730	2110	2510	2010	2590	2210	2560	2570

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results Summary L2019410

Job Reference	0403488-0008
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received	7-Nov-2017 22:49
Report Date	31-Jan-2018 15:34
Report Version	1

Client Sample ID			505-8	505-9	505-10	505-11	505-12	505-13	505-14	505-15	501-11	501-12	501-13	501-14	501-15	501-16	501-17	501-18	511-10	511-11	511-12
Date Sampled			11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017
Time Sampled			0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID			L2019410-1	L2019410-2	L2019410-3	L2019410-4	L2019410-5	L2019410-6	L2019410-7	L2019410-8	L2019410-9	L2019410-10	L2019410-11	L2019410-12	L2019410-13	L2019410-14	L2019410-15	L2019410-16	L2019410-17	L2019410-18	L2019410-19
Parameter	Lowest Detection Limit	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Potassium (K)-Total	20	mg/kg	16900	19000	16500	17500	17100	18600	17500	18600	18100	15100	15800	16700	16500	17900	17700	17400	19000	18100	17400
Potassium (K)-Total	4.0	mg/kg wwt	3710	4160	3630	3900	3780	4050	3850	3970	4010	3570	3690	3990	3790	3870	3870	3820	4230	3780	4070
Rubidium (Rb)-Total	0.050	mg/kg	21.7	21.8	16.3	22.2	24.8	21.0	25.4	23.6	16.8	19.0	17.8	19.5	15.2	16.9	20.0	20.4	7.27	6.27	7.05
Rubidium (Rb)-Total	0.010	mg/kg wwt	4.77	4.76	3.57	4.96	5.49	4.57	5.57	5.04	3.73	4.49	4.17	4.64	3.49	3.67	4.39	4.49	1.62	1.31	1.65
Selenium (Se)-Total	0.050	mg/kg	1.79	1.67	1.41	1.69	1.50	1.40	1.79	1.49	2.50	2.27	2.71	2.34	2.54	2.03	3.13	1.79	1.51	1.24	1.36
Selenium (Se)-Total	0.010	mg/kg wwt	0.394	0.364	0.310	0.378	0.333	0.305	0.393	0.319	0.554	0.535	0.635	0.559	0.584	0.439	0.687	0.395	0.335	0.259	0.319
Silver (Ag)-Total	0.0050	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silver (Ag)-Total	0.0010	mg/kg wwt	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sodium (Na)-Total	20	mg/kg	3110	2680	2750	2730	2280	2640	3020	2670	2680	2400	2700	2410	2450	2750	2840	2490	2550	3510	2420
Sodium (Na)-Total	4.0	mg/kg wwt	684	586	606	611	505	574	664	571	593	567	632	575	562	596	623	548	567	733	564
Strontium (Sr)-Total	0.050	mg/kg	3.24	2.46	5.90	1.47	1.36	3.70	2.79	1.32	3.11	3.75	5.32	1.92	1.86	1.58	2.26	3.10	3.17	4.36	5.01
Strontium (Sr)-Total	0.010	mg/kg wwt	0.711	0.539	1.30	0.328	0.301	0.806	0.612	0.282	0.688	0.884	1.25	0.456	0.427	0.344	0.496	0.683	0.704	0.911	1.17
Tellurium (Te)-Total	0.020	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tellurium (Te)-Total	0.0040	mg/kg wwt	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	0.0020	mg/kg	0.0208	0.0195	0.0179	0.0180	0.0257	0.0245	0.0277	0.0247	0.0116	0.0142	0.0119	0.0171	0.0112	0.0148	0.0163	0.0195	0.0077	0.0093	0.0070
Thallium (Tl)-Total	0.00040	mg/kg wwt	0.00456	0.00427	0.00393	0.00402	0.00568	0.00533	0.00609	0.00527	0.00257	0.00336	0.00278	0.00409	0.00257	0.00321	0.00356	0.00429	0.00171	0.00195	0.00164
Tin (Sn)-Total	0.10	mg/kg	<0.10	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	0.23	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10
Tin (Sn)-Total	0.020	mg/kg wwt	<0.020	<0.020	<0.020	0.025	<0.020	<0.020	0.020	<0.020	0.050	<0.020	<0.020	<0.020	<0.020	<0.020	0.025	<0.020	<0.020	<0.020	<0.020
Uranium (U)-Total	0.0020	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Uranium (U)-Total	0.00040	mg/kg wwt	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Vanadium (V)-Total	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Vanadium (V)-Total	0.020	mg/kg wwt	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc (Zn)-Total	0.50	mg/kg	45.6	25.9	34.0	26.9	25.2	27.9	34.9	25.4	28.6	30.0	40.6	27.2	25.5	25.8	32.8	25.0	26.1	29.3	23.1
Zinc (Zn)-Total	0.10	mg/kg wwt	10.0	5.66	7.49	6.00	5.56	6.07	7.66	5.42	6.34	7.07	9.50	6.47	5.86	5.59	7.19	5.50	5.80	6.11	5.39
Zirconium (Zr)-Total	0.20	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.33	<0.20	<0.20	<0.20	<0.20	<0.20
Zirconium (Zr)-Total	0.040	mg/kg wwt	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.072	<0.040	<0.040	<0.040	<0.040	<0.040

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results Summary L2019410

Job Reference	0403488-0008
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received	7-Nov-2017 22:49
Report Date	31-Jan-2018 15:34
Report Version	1

Client Sample ID			511-13	511-14	511-15	511-16	511-17	508-5	508-6	508-7	508-8	508-9	508-10	508-11	508-12	509-6	509-7	509-8	509-9	509-10	509-11
Date Sampled			12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017
Time Sampled			0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID			L2019410-20	L2019410-21	L2019410-22	L2019410-23	L2019410-24	L2019410-25	L2019410-26	L2019410-27	L2019410-28	L2019410-29	L2019410-30	L2019410-31	L2019410-32	L2019410-33	L2019410-34	L2019410-35	L2019410-36	L2019410-37	L2019410-38
Parameter	Lowest Detection Limit	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Potassium (K)-Total	20	mg/kg	19500	18500	17200	15600	16300	18000	19000	19300	19900	19400	20200	19800	17400	20600	19700	19300	18500	20700	20100
Potassium (K)-Total	4.0	mg/kg wwt	4100	3990	3620	3480	3510	3790	3950	3950	3970	3870	3850	4090	3890	4170	4080	4040	3880	4140	4110
Rubidium (Rb)-Total	0.050	mg/kg	8.70	7.56	6.17	5.02	6.04	12.0	12.6	14.7	13.7	18.3	12.4	18.2	13.2	17.8	15.8	16.4	23.4	20.5	15.5
Rubidium (Rb)-Total	0.010	mg/kg wwt	1.83	1.63	1.30	1.12	1.30	2.54	2.62	3.02	2.73	3.63	2.36	3.76	2.96	3.60	3.28	3.45	4.90	4.10	3.17
Selenium (Se)-Total	0.050	mg/kg	1.22	1.18	1.25	0.93	1.41	2.14	1.82	1.39	2.38	2.74	2.00	1.99	1.26	1.91	1.98	1.83	2.16	1.70	1.61
Selenium (Se)-Total	0.010	mg/kg wwt	0.258	0.255	0.263	0.208	0.304	0.451	0.380	0.284	0.473	0.545	0.381	0.412	0.283	0.387	0.411	0.385	0.452	0.340	0.331
Silver (Ag)-Total	0.0050	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silver (Ag)-Total	0.0010	mg/kg wwt	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sodium (Na)-Total	20	mg/kg	2760	2430	2540	2650	3160	2600	2530	2650	2980	3580	3220	3350	2480	3630	3280	2810	3080	3490	3540
Sodium (Na)-Total	4.0	mg/kg wwt	582	523	534	592	680	548	527	544	593	713	615	693	556	736	680	591	646	700	724
Strontium (Sr)-Total	0.050	mg/kg	3.49	4.16	3.70	1.69	4.91	8.20	3.28	1.80	1.34	6.19	1.89	3.91	3.68	2.99	1.58	1.83	2.64	4.73	2.86
Strontium (Sr)-Total	0.010	mg/kg wwt	0.734	0.897	0.778	0.378	1.06	1.73	0.682	0.368	0.266	1.23	0.361	0.808	0.825	0.605	0.328	0.384	0.553	0.948	0.587
Tellurium (Te)-Total	0.020	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tellurium (Te)-Total	0.0040	mg/kg wwt	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	0.0020	mg/kg	0.0081	0.0097	0.0073	0.0070	0.0051	0.0067	0.0109	0.0126	0.0125	0.0147	0.0109	0.0101	0.0068	0.0097	0.0096	0.0106	0.0142	0.0156	0.0085
Thallium (Tl)-Total	0.00040	mg/kg wwt	0.00171	0.00208	0.00154	0.00157	0.00110	0.00142	0.00226	0.00258	0.00249	0.00292	0.00207	0.00209	0.00151	0.00197	0.00199	0.00223	0.00298	0.00313	0.00174
Tin (Sn)-Total	0.10	mg/kg	<0.10	<0.10	0.17	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.16	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11
Tin (Sn)-Total	0.020	mg/kg wwt	<0.020	<0.020	0.036	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.032	0.023	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.022
Uranium (U)-Total	0.0020	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0028	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Uranium (U)-Total	0.00040	mg/kg wwt	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00058	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Vanadium (V)-Total	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Vanadium (V)-Total	0.020	mg/kg wwt	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc (Zn)-Total	0.50	mg/kg	26.7	33.1	38.1	27.1	29.2	31.7	27.3	22.3	23.1	39.0	27.1	36.6	28.7	25.6	24.0	20.3	23.7	27.1	33.2
Zinc (Zn)-Total	0.10	mg/kg wwt	5.63	7.14	8.03	6.06	6.27	6.67	5.67	4.57	4.60	7.76	5.18	7.56	6.43	5.20	4.97	4.27	4.97	5.43	6.81
Zirconium (Zr)-Total	0.20	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Zirconium (Zr)-Total	0.040	mg/kg wwt	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results Summary L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID			509-12	509-13	502-10	502-11	502-12	502-13	502-14	502-15	502-16	502-17	512-6	512-7	512-8	512-9	512-10	512-11	512-12	512-13
Date Sampled			13-Oct-2017	13-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017
Time Sampled			0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID			L2019410-39	L2019410-40	L2019410-41	L2019410-42	L2019410-43	L2019410-44	L2019410-45	L2019410-46	L2019410-47	L2019410-48	L2019410-49	L2019410-50	L2019410-51	L2019410-52	L2019410-53	L2019410-54	L2019410-55	L2019410-56
Parameter	Lowest Detection Limit	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Potassium (K)-Total	20	mg/kg	19300	19500	18300	18000	15700	16200	15500	17900	17600	18700	18200	17500	19300	15700	19300	17000	20000	20200
Potassium (K)-Total	4.0	mg/kg wwt	4020	4060	3840	3960	3590	3810	3680	4290	4090	4250	4110	3640	4000	3510	3610	3540	4160	4140
Rubidium (Rb)-Total	0.050	mg/kg	17.0	19.9	14.0	15.0	13.2	18.0	15.7	14.0	17.0	17.8	6.21	6.92	12.6	6.95	14.5	8.59	8.27	11.0
Rubidium (Rb)-Total	0.010	mg/kg wwt	3.54	4.14	2.95	3.30	3.00	4.22	3.74	3.36	3.96	4.05	1.40	1.44	2.61	1.55	2.71	1.79	1.72	2.26
Selenium (Se)-Total	0.050	mg/kg	1.59	2.37	2.27	2.18	2.13	2.71	2.99	1.79	2.50	2.42	1.30	1.30	1.25	1.29	2.85	1.26	1.24	1.51
Selenium (Se)-Total	0.010	mg/kg wwt	0.332	0.493	0.479	0.480	0.486	0.636	0.710	0.429	0.582	0.551	0.295	0.270	0.259	0.287	0.533	0.262	0.257	0.310
Silver (Ag)-Total	0.0050	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silver (Ag)-Total	0.0010	mg/kg wwt	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sodium (Na)-Total	20	mg/kg	3110	3150	2550	2630	2480	2550	2610	2310	2730	2730	2360	2730	2850	2600	3850	2600	2450	2510
Sodium (Na)-Total	4.0	mg/kg wwt	647	655	536	578	567	598	622	554	635	621	534	568	591	580	722	541	509	516
Strontium (Sr)-Total	0.050	mg/kg	3.51	1.80	2.17	6.60	2.06	1.18	1.23	2.31	1.20	5.18	2.89	3.41	5.32	1.80	7.52	4.07	2.15	2.35
Strontium (Sr)-Total	0.010	mg/kg wwt	0.732	0.374	0.457	1.45	0.471	0.277	0.293	0.554	0.281	1.18	0.654	0.711	1.10	0.402	1.41	0.848	0.447	0.483
Tellurium (Te)-Total	0.020	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tellurium (Te)-Total	0.0040	mg/kg wwt	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	0.0020	mg/kg	0.0103	0.0152	0.0143	0.0132	0.0131	0.0191	0.0183	0.0170	0.0167	0.0213	0.0072	0.0072	0.0086	0.0084	0.0144	0.0064	0.0068	0.0078
Thallium (Tl)-Total	0.00040	mg/kg wwt	0.00214	0.00316	0.00300	0.00290	0.00300	0.00447	0.00435	0.00407	0.00390	0.00483	0.00164	0.00151	0.00178	0.00187	0.00269	0.00134	0.00141	0.00161
Tin (Sn)-Total	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.18	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	2.16	0.34	<0.10	<0.10
Tin (Sn)-Total	0.020	mg/kg wwt	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	0.044	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.028	0.404	0.071	<0.020
Uranium (U)-Total	0.0020	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0030	<0.0020	<0.0020	<0.0020
Uranium (U)-Total	0.00040	mg/kg wwt	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00057	<0.00040	<0.00040	<0.00040
Vanadium (V)-Total	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Vanadium (V)-Total	0.020	mg/kg wwt	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc (Zn)-Total	0.50	mg/kg	29.9	26.0	24.9	38.8	29.8	29.0	25.5	20.9	25.0	25.7	23.3	30.9	27.5	28.6	53.3	31.8	26.5	21.9
Zinc (Zn)-Total	0.10	mg/kg wwt	6.24	5.40	5.23	8.53	6.79	6.79	6.07	5.02	5.82	5.84	5.26	6.44	5.71	6.38	9.99	6.63	5.51	4.51
Zirconium (Zr)-Total	0.20	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.41
Zirconium (Zr)-Total	0.040	mg/kg wwt	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.046	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.085

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Physical Tests (Tissue)														
% Moisture	L2019410-1	505-8	MOISTURE-MICR-VA	78.0	2.0	%	11-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	0.092	0.030	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.0202	0.0060	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	1.49	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.327	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	0.063	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.0139	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	4310	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	946	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	0.438	0.0050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.0961	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	0.22	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.048	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	0.198	0.020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.0435	0.0040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	2.22	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.487	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	25.4	5.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	5.6	1.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Magnesium (Mg)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	1060	2.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	233	0.40	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	1.19	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.261	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-1	505-8	HG-DRY-MICR-CVAF-VA	0.0906	0.0050	mg/kg	11-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-1	505-8	HG-WET-MICR-CVAF-VA	0.0199	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	10600	10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	2330	2.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	16900	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	3710	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	21.7	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	4.77	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	1.79	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.394	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-1	505-8	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-1	505-8	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	3110	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	684	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	3.24	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.711	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	0.0208	0.0020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	0.00456	0.00040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	45.6	1.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Zinc (Zn)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	10.0	0.20	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-1	505-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-1	505-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-2	505-9	MOISTURE-MICR-VA	78.1	2.0	%	11-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	0.167	0.030	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.0364	0.0060	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	0.685	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.150	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	0.011	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.0023	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	4010	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	878	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	0.417	0.0050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.0912	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	0.118	0.020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.0258	0.0040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	1.45	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.317	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	13.8	5.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	3.0	1.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Lead (Pb)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	1190	2.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	260	0.40	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	1.21	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.265	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-2	505-9	HG-DRY-MICR-CVAF-VA	0.122	0.0050	mg/kg	11-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-2	505-9	HG-WET-MICR-CVAF-VA	0.0266	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	10800	10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	2360	2.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	19000	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	4160	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	21.8	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	4.76	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	1.67	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.364	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-2	505-9	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-2	505-9	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	2680	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	586	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	2.46	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.539	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	0.0195	0.0020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	0.00427	0.00040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Vanadium (V)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	25.9	1.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	5.66	0.20	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-2	505-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-2	505-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-3	505-10	MOISTURE-MICR-VA	78.0	2.0	%	11-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	0.080	0.030	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.0176	0.0060	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	1.73	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.381	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	0.039	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.0086	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	6500	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	1430	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	0.384	0.0050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.0845	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	0.60	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.131	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	0.088	0.020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.0194	0.0040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	1.13	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.248	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Iron (Fe)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	19.3	5.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	4.3	1.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	1190	2.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	263	0.40	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	2.60	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.571	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-3	505-10	HG-DRY-MICR-CVAF-VA	0.110	0.0050	mg/kg	11-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-3	505-10	HG-WET-MICR-CVAF-VA	0.0242	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	11500	10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	2520	2.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	16500	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	3630	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	16.3	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	3.57	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	1.41	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.310	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-3	505-10	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-3	505-10	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	2750	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	606	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	5.90	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	1.30	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	0.0179	0.0020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	0.00393	0.00040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Tin (Sn)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	34.0	1.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	7.49	0.20	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-3	505-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-3	505-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-4	505-11	MOISTURE-MICR-VA	77.7	2.0	%	11-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	0.092	0.030	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.0206	0.0060	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	0.606	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.136	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	0.024	0.010	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.0054	0.0020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	2530	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	566	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	0.447	0.0050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.0998	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	0.27	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.060	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	0.178	0.020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cobalt (Co)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.0398	0.0040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	2.05	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.459	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	20.9	5.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	4.7	1.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	1080	2.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	242	0.40	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	0.951	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.213	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-4	505-11	HG-DRY-MICR-CVAF-VA	0.112	0.0050	mg/kg	11-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-4	505-11	HG-WET-MICR-CVAF-VA	0.0251	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	9790	10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	2190	2.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	17500	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	3900	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	22.2	0.050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	4.96	0.010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	1.69	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.378	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-4	505-11	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-4	505-11	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	2730	20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	611	4.0	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	1.47	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.328	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Thallium (Tl)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	0.0180	0.0020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.00402	0.00040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	0.11	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	0.025	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	26.9	1.0	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	6.00	0.20	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-4	505-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-4	505-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-5	505-12	MOISTURE-MICR-VA	77.9	2.0	%	11-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	0.127	0.030	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.0280	0.0060	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	0.565	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.125	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	0.029	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.0064	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	2120	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	468	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	0.421	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.0931	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Chromium (Cr)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	0.25	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.054	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	0.219	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.0485	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	1.61	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.356	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	15.0	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	3.3	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	1180	2.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	262	0.40	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	1.05	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.233	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-5	505-12	HG-DRY-MICR-CVAF-VA	0.0859	0.0050	mg/kg	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-5	505-12	HG-WET-MICR-CVAF-VA	0.0190	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	10800	10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	2400	2.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	17100	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	3780	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	24.8	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	5.49	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	1.50	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.333	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-5	505-12	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-5	505-12	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	2280	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	505	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	1.36	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Strontium (Sr)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.301	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	0.0257	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	0.00568	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	25.2	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	5.56	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-5	505-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-5	505-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-6	505-13	MOISTURE-MICR-VA	78.2	2.0	%	11-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	0.078	0.030	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.0171	0.0060	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	1.62	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.352	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	0.072	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.0156	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	3990	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Calcium (Ca)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	868	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	0.464	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.101	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	0.168	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.0365	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	1.27	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.277	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	16.3	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	3.5	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	1190	2.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	259	0.40	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	2.55	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.556	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-6	505-13	HG-DRY-MICR-CVAF-VA	0.0790	0.0050	mg/kg	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-6	505-13	HG-WET-MICR-CVAF-VA	0.0172	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	11400	10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	2470	2.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	18600	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	4050	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	21.0	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	4.57	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	1.40	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.305	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-6	505-13	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-6	505-13	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Sodium (Na)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	2640	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	574	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	3.70	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.806	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	0.0245	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	0.00533	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	27.9	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	6.07	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-6	505-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-6	505-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-7	505-14	MOISTURE-MICR-VA	78.1	2.0	%	11-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	0.092	0.030	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.0203	0.0060	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	1.14	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.250	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cadmium (Cd)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	0.081	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.0177	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	4900	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	1070	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	0.402	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.0882	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	0.24	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.052	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	0.179	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.0393	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	1.68	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.368	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	19.8	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	4.3	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	1180	2.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	258	0.40	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	2.21	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.485	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-7	505-14	HG-DRY-MICR-CVAF-VA	0.0876	0.0050	mg/kg	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-7	505-14	HG-WET-MICR-CVAF-VA	0.0192	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.042	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	12000	10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	2630	2.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	17500	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	3850	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	25.4	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	5.57	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	1.79	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Selenium (Se)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.393	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-7	505-14	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-7	505-14	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	3020	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	664	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	2.79	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.612	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	0.0277	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.00609	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	0.020	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	34.9	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	7.66	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-7	505-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-7	505-14	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-8	505-15	MOISTURE-MICR-VA	78.6	2.0	%	11-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	0.452	0.030	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.0966	0.0060	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	0.824	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.176	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Bismuth (Bi)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	0.021	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.0044	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	2390	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	511	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	0.367	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.0785	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	0.109	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.0233	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	0.94	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.201	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	11.7	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	2.5	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	1190	2.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	254	0.40	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	0.978	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.209	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-8	505-15	HG-DRY-MICR-CVAF-VA	0.0984	0.0050	mg/kg	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-8	505-15	HG-WET-MICR-CVAF-VA	0.0210	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	10000	10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	2140	2.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	18600	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	3970	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Rubidium (Rb)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	23.6	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	5.04	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	1.49	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.319	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-8	505-15	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-8	505-15	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	2670	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	571	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	1.32	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.282	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	0.0247	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	0.00527	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	25.4	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	5.42	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-8	505-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-8	505-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-9	501-11	MOISTURE-MICR-VA	77.8	2.0	%	11-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	0.070	0.030	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.0155	0.0060	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	1.04	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.230	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Beryllium (Be)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	0.050	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.0111	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	0.018	0.010	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.0041	0.0020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	4020	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	890	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	0.869	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.193	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	0.36	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.079	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	0.072	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.0161	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	1.58	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.350	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	15.7	5.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	3.5	1.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	1250	2.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	277	0.40	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	2.01	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.446	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-9	501-11	HG-DRY-MICR-CVAF-VA	0.0621	0.0050	mg/kg	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-9	501-11	HG-WET-MICR-CVAF-VA	0.0138	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	11500	10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Phosphorus (P)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	2550	2.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	18100	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	4010	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	16.8	0.050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	3.73	0.010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	2.50	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.554	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-9	501-11	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-9	501-11	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	2680	20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	593	4.0	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	3.11	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.688	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	0.0116	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.00257	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	0.23	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	0.050	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	28.6	1.0	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	6.34	0.20	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-9	501-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-9	501-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	11-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-10	501-12	MOISTURE-MICR-VA	76.4	2.0	%	12-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	0.127	0.030	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Arsenic (As)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.0300	0.0060	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	0.896	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.211	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.0023	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	4160	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	981	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	1.25	0.0050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.294	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	0.069	0.020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.0162	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	1.46	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.345	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	14.3	5.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	3.4	1.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	1110	2.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	262	0.40	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	1.55	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.366	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-10	501-12	HG-DRY-MICR-CVAF-VA	0.0658	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-10	501-12	HG-WET-MICR-CVAF-VA	0.0155	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Nickel (Ni)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	10400	10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	2450	2.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	15100	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	3570	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	19.0	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	4.49	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	2.27	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.535	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-10	501-12	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-10	501-12	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	2400	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	567	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	3.75	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.884	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	0.0142	0.0020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	0.00336	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	30.0	1.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	7.07	0.20	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-10	501-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-10	501-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-11	501-13	MOISTURE-MICR-VA	76.6	2.0	%	12-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Antimony (Sb)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	0.180	0.030	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	0.0421	0.0060	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	0.969	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	0.227	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	5570	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	1300	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	1.03	0.0050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	0.241	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	0.067	0.020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	0.0157	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	1.45	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	0.341	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	13.5	5.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	3.2	1.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	1200	2.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	281	0.40	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	1.61	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	0.377	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-11	501-13	HG-DRY-MICR-CVAF-VA	0.0822	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Mercury (Hg)-Total	L2019410-11	501-13	HG-WET-MICR-CVAF-VA	0.0193	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	11700	10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	2750	2.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	15800	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	3690	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	17.8	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	4.17	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	2.71	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	0.635	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-11	501-13	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-11	501-13	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	2700	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	632	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	5.32	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	1.25	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	0.0119	0.0020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	0.00278	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	40.6	1.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	9.50	0.20	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-11	501-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-11	501-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-12	501-14	MOISTURE-MICR-VA	76.2	2.0	%	12-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	0.198	0.030	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.0472	0.0060	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	0.571	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.136	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	0.772	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.184	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	2530	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	604	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	1.44	0.0050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.343	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.044	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	0.048	0.020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.0114	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	1.86	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.444	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	20.5	5.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	4.9	1.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	1140	2.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	273	0.40	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Manganese (Mn)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	5.91	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	1.41	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-12	501-14	HG-DRY-MICR-CVAF-VA	0.0835	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-12	501-14	HG-WET-MICR-CVAF-VA	0.0199	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	9720	10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	2320	2.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	16700	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	3990	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	19.5	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	4.64	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	2.34	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.559	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-12	501-14	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-12	501-14	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	2410	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	575	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	1.92	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.456	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	0.0171	0.0020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	0.00409	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	27.2	1.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	6.47	0.20	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-12	501-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Zirconium (Zr)-Total	L2019410-12	501-14	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-13	501-15	MOISTURE-MICR-VA	77.0	2.0	%	12-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	0.089	0.030	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	0.0205	0.0060	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	0.463	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	0.106	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	3170	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	729	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	0.930	0.0050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	0.214	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	0.035	0.020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	0.0079	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	1.60	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	0.368	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	17.5	5.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	4.0	1.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Lithium (Li)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	1100	2.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	253	0.40	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	1.35	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	0.310	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-13	501-15	HG-DRY-MICR-CVAF-VA	0.0818	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-13	501-15	HG-WET-MICR-CVAF-VA	0.0188	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	9360	10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	2150	2.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	16500	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	3790	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	15.2	0.050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	3.49	0.010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	2.54	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	0.584	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-13	501-15	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-13	501-15	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	2450	20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	562	4.0	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	1.86	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	0.427	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	0.0112	0.0020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	0.00257	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Zinc (Zn)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	25.5	1.0	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	5.86	0.20	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-13	501-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-13	501-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-14	501-16	MOISTURE-TISS-VA	78.3	0.50	%	12-Oct-17		24-Jan-18	805438	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<2.0	2.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.40	0.40	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	0.095	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.0206	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	0.449	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.097	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.0022	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<1.0	1.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.20	0.20	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	0.0051	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.0011	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	2330	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	507	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	0.944	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.205	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	0.157	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.034	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	0.047	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.0102	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	1.82	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.394	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	16.3	3.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	3.54	0.60	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations

✗ QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Lead (Pb)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.50	0.50	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.10	0.10	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	1280	2.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	277	0.40	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	0.854	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.185	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-14	501-16	HG-DRY-CVAFS-N-VA	0.0965	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-14	501-16	HG-WET-CVAFS-N-VA	0.0209	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	11500	10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	2500	2.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	17900	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	3870	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	16.9	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	3.67	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	2.03	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.439	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-14	501-16	AG-DRY-CCMS-N-VA	<0.0050	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-14	501-16	AG-WET-CCMS-N-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	2750	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	596	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	1.58	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.344	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	0.0148	0.0020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.00321	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.0020	0.0020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Uranium (U)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	25.8	0.50	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	5.59	0.10	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-14	501-16	MET-DRY-CCMS-N-VA	0.33	0.20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-14	501-16	MET-WET-CCMS-N-VA	0.072	0.040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-15	501-17	MOISTURE-MICR-VA	78.1	2.0	%	12-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	0.192	0.030	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.0422	0.0060	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	0.838	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.184	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	2500	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	547	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	1.01	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.221	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	0.092	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.0201	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	1.87	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Copper (Cu)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.410	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	19.9	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	4.4	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	1150	2.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	252	0.40	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	0.998	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.219	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-15	501-17	HG-DRY-MICR-CVAF-VA	0.0917	0.0050	mg/kg	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-15	501-17	HG-WET-MICR-CVAF-VA	0.0201	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	10300	10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	2270	2.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	17700	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	3870	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	20.0	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	4.39	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	3.13	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.687	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-15	501-17	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-15	501-17	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	2840	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	623	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	2.26	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.496	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	0.0163	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.00356	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Tin (Sn)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	0.11	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	0.025	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	32.8	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	7.19	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-15	501-17	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-15	501-17	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-16	501-18	MOISTURE-MICR-VA	78.0	2.0	%	12-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	0.120	0.030	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	0.0265	0.0060	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	0.596	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	0.131	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	3720	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	819	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	1.33	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	0.292	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cobalt (Co)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	0.070	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	0.0154	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	1.64	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	0.362	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	14.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	3.1	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	1220	2.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	268	0.40	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	1.25	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	0.276	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-16	501-18	HG-DRY-MICR-CVAF-VA	0.0548	0.0050	mg/kg	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-16	501-18	HG-WET-MICR-CVAF-VA	0.0121	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	11000	10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	2420	2.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	17400	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	3820	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	20.4	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	4.49	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	1.79	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	0.395	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-16	501-18	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-16	501-18	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	2490	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	548	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	3.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	0.683	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Tellurium (Te)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	0.0195	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	0.00429	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	25.0	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	5.50	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-16	501-18	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-16	501-18	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-17	511-10	MOISTURE-TISS-VA	77.8	0.50	%	12-Oct-17		24-Jan-18	805438	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<2.0	2.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.40	0.40	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.0021	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	0.203	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.0451	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	0.803	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.179	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<1.0	1.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.20	0.20	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	0.0157	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.0035	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	3560	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	792	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	0.0326	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓ QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗ QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34	
Report Version	1	

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cesium (Cs)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.0073	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	0.140	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.031	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	0.046	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.0103	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	1.49	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.331	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	18.0	3.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	4.00	0.60	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.50	0.50	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.10	0.10	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	1390	2.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	309	0.40	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	1.87	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.415	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-17	511-10	HG-DRY-CVAFS-N-VA	0.0884	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-17	511-10	HG-WET-CVAFS-N-VA	0.0197	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	13000	10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	2880	2.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	19000	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	4230	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	7.27	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	1.62	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	1.51	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.335	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-17	511-10	AG-DRY-CCMS-N-VA	<0.0050	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-17	511-10	AG-WET-CCMS-N-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	2550	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	567	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Strontium (Sr)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	3.17	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.704	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	0.0077	0.0020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	0.00171	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.0020	0.0020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	26.1	0.50	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	5.80	0.10	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-17	511-10	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-17	511-10	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-18	511-11	MOISTURE-TISS-VA	79.1	0.50	%	12-Oct-17		24-Jan-18	805438	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<2.0	2.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.40	0.40	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	0.196	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.0409	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	2.46	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.513	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<1.0	1.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.20	0.20	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	0.0133	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.0028	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Calcium (Ca)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	4700	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	981	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	0.0228	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.0048	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	0.131	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.027	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	0.044	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.0093	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	1.70	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.355	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	18.8	3.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	3.93	0.60	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.50	0.50	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.10	0.10	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	1380	2.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	289	0.40	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	3.35	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.700	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-18	511-11	HG-DRY-CVAFS-N-VA	0.112	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-18	511-11	HG-WET-CVAFS-N-VA	0.0234	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	14100	10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	2950	2.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	18100	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	3780	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	6.27	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	1.31	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	1.24	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.259	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-18	511-11	AG-DRY-CCMS-N-VA	<0.0050	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Silver (Ag)-Total	L2019410-18	511-11	AG-WET-CCMS-N-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	3510	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	733	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	4.36	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.911	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	0.0093	0.0020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	0.00195	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.0020	0.0020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	29.3	0.50	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	6.11	0.10	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-18	511-11	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-18	511-11	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-19	511-12	MOISTURE-MICR-VA	76.6	2.0	%	12-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	0.113	0.030	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	0.0265	0.0060	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	1.58	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	0.368	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Boron (B)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	5600	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	1310	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	0.0443	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	0.0103	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	0.028	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	0.0066	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	1.19	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	0.278	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	13.4	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	3.1	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	1280	2.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	299	0.40	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	1.85	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	0.432	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-19	511-12	HG-DRY-MICR-CVAF-VA	0.0417	0.0050	mg/kg	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-19	511-12	HG-WET-MICR-CVAF-VA	0.0097	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	12500	10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	2920	2.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	17400	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	4070	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	7.05	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	1.65	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Selenium (Se)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	1.36	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	0.319	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-19	511-12	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-19	511-12	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	2420	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	564	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	5.01	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	1.17	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	0.0070	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	0.00164	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	23.1	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	5.39	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-19	511-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-19	511-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-20	511-13	MOISTURE-MICR-VA	78.9	2.0	%	12-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	0.128	0.030	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.0269	0.0060	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	1.40	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.295	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Bismuth (Bi)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	0.012	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.0025	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	3720	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	782	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	0.0311	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.0066	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	0.054	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.0113	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	1.33	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.281	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	16.3	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	3.4	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	1250	2.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	264	0.40	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	2.25	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.475	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-20	511-13	HG-DRY-MICR-CVAF-VA	0.0934	0.0050	mg/kg	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-20	511-13	HG-WET-MICR-CVAF-VA	0.0197	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	11500	10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	2410	2.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	19500	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Potassium (K)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	4100	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	8.70	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	1.83	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	1.22	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.258	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-20	511-13	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-20	511-13	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	2760	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	582	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	3.49	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.734	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	0.0081	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	0.00171	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	26.7	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	5.63	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-20	511-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-20	511-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-21	511-14	MOISTURE-MICR-VA	78.4	2.0	%	12-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	0.104	0.030	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.0225	0.0060	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	1.15	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Barium (Ba)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.248	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	0.018	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.0038	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	4250	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	916	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	0.0280	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.0060	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	0.48	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.103	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	0.038	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.0083	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	1.35	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.290	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	18.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	3.9	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	1340	2.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	290	0.40	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	4.83	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	1.04	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-21	511-14	HG-DRY-MICR-CVAF-VA	0.0664	0.0050	mg/kg	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-21	511-14	HG-WET-MICR-CVAF-VA	0.0143	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	0.088	0.040	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.0190	0.0080	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Phosphorus (P)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	12300	10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	2660	2.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	18500	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	3990	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	7.56	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	1.63	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	1.18	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.255	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-21	511-14	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-21	511-14	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	2430	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	523	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	4.16	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.897	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	0.0097	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	0.00208	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.00020	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	33.1	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	7.14	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-21	511-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-21	511-14	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-22	511-15	MOISTURE-MICR-VA	79.0	2.0	%	12-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Arsenic (As)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	0.109	0.030	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.0230	0.0060	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	1.32	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.278	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	0.017	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.0036	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	4110	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	865	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	0.0261	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.0055	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	0.33	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.070	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	0.057	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.0119	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	1.58	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.333	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	19.6	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	4.1	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	1270	2.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	268	0.40	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	3.43	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.722	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-22	511-15	HG-DRY-MICR-CVAF-VA	0.0821	0.0050	mg/kg	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-22	511-15	HG-WET-MICR-CVAF-VA	0.0173	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Molybdenum (Mo)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	0.21	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.045	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	11800	10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	2490	2.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	17200	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	3620	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	6.17	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	1.30	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	1.25	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.263	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-22	511-15	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-22	511-15	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	2540	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	534	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	3.70	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.778	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	0.0073	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.00154	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	0.17	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	0.036	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	38.1	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	8.03	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-22	511-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-22	511-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-23	511-16	MOISTURE-MICR-VA	77.7	2.0	%	12-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Aluminum (Al)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	0.130	0.030	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	0.0290	0.0060	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	0.894	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	0.200	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	1920	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	429	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	0.0170	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	0.0038	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	0.039	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	0.0086	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	1.29	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	0.289	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	14.0	5.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	3.1	1.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	1120	2.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	250	0.40	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	1.59	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	0.355	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Mercury (Hg)-Total	L2019410-23	511-16	HG-DRY-MICR-CVAF-VA	0.305	0.0050	mg/kg	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-23	511-16	HG-WET-MICR-CVAF-VA	0.0681	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	10200	10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	2270	2.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	15600	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	3480	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	5.02	0.050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	1.12	0.010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	0.93	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	0.208	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-23	511-16	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-23	511-16	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	2650	20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	592	4.0	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	1.69	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	0.378	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	0.0070	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	0.00157	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	27.1	1.0	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	6.06	0.20	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-23	511-16	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-23	511-16	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	12-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Physical Tests (Tissue)														
% Moisture	L2019410-24	511-17	MOISTURE-TISS-VA	78.5	0.50	%	12-Oct-17		24-Jan-18	805438	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<2.0	2.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.42	0.40	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	0.182	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.0392	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	1.59	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.342	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<1.0	1.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.20	0.20	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	0.0119	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.0026	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	5080	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	1090	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	0.0281	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.0060	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	0.063	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.014	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	0.026	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.0055	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	1.63	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.350	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	17.8	3.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	3.83	0.60	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.50	0.50	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.10	0.10	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Magnesium (Mg)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	1370	2.0	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	295	0.40	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	2.60	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.560	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-24	511-17	HG-DRY-CVAFS-N-VA	0.246	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-24	511-17	HG-WET-CVAFS-N-VA	0.0529	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	13000	10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	2800	2.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	16300	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	3510	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	6.04	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	1.30	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	1.41	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.304	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-24	511-17	AG-DRY-CCMS-N-VA	<0.0050	0.0050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-24	511-17	AG-WET-CCMS-N-VA	<0.0010	0.0010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	3160	20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	680	4.0	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	4.91	0.050	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	1.06	0.010	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	0.0051	0.0020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	0.00110	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.0020	0.0020	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.00040	0.00040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	29.2	0.50	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Zinc (Zn)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	6.27	0.10	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-24	511-17	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-24	511-17	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	12-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-25	508-5	MOISTURE-MICR-VA	78.9	2.0	%	13-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	0.052	0.030	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	0.0109	0.0060	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	3.19	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	0.672	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	0.042	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	0.0088	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	10300	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	2160	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	0.0701	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	0.0148	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	0.061	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	0.0129	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	1.07	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	0.224	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	13.6	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	2.9	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Lead (Pb)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	1210	2.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	255	0.40	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	6.04	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	1.27	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-25	508-5	HG-DRY-MICR-CVAF-VA	0.0650	0.0050	mg/kg	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-25	508-5	HG-WET-MICR-CVAF-VA	0.0137	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	14000	10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	2940	2.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	18000	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	3790	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	12.0	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	2.54	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	2.14	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	0.451	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-25	508-5	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-25	508-5	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	2600	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	548	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	8.20	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	1.73	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	0.0067	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	0.00142	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	0.0028	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	0.00058	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Vanadium (V)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	31.7	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	6.67	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-25	508-5	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-25	508-5	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-26	508-6	MOISTURE-MICR-VA	79.2	2.0	%	13-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	0.068	0.030	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.0141	0.0060	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	1.42	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.296	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	0.017	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.0035	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	4350	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	905	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	0.0859	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.0179	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	0.31	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.066	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	0.041	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.0085	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	1.58	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.328	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Iron (Fe)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	16.6	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	3.4	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	1340	2.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	279	0.40	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	3.34	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.696	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-26	508-6	HG-DRY-MICR-CVAF-VA	0.102	0.0050	mg/kg	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-26	508-6	HG-WET-MICR-CVAF-VA	0.0212	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	12100	10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	2520	2.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	19000	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	3950	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	12.6	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	2.62	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	1.82	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.380	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-26	508-6	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-26	508-6	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	2530	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	527	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	3.28	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.682	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	0.0109	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	0.00226	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Tin (Sn)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	27.3	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	5.67	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-26	508-6	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-26	508-6	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-27	508-7	MOISTURE-MICR-VA	79.5	2.0	%	13-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	7.4	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	1.5	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	0.253	0.030	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.0519	0.0060	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	1.21	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.248	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	0.019	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.0038	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	2470	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	506	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	0.179	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.0367	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	0.42	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.086	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	0.090	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cobalt (Co)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.0184	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	1.49	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.305	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	26.7	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	5.5	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	1270	2.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	261	0.40	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	2.53	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.519	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-27	508-7	HG-DRY-MICR-CVAF-VA	0.0972	0.0050	mg/kg	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-27	508-7	HG-WET-MICR-CVAF-VA	0.0199	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	11300	10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	2310	2.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	19300	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	3950	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	14.7	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	3.02	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	1.39	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.284	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-27	508-7	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-27	508-7	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	2650	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	544	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	1.80	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.368	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Thallium (Tl)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	0.0126	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	0.00258	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	22.3	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	4.57	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-27	508-7	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-27	508-7	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-28	508-8	MOISTURE-MICR-VA	80.1	2.0	%	13-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	0.097	0.030	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.0192	0.0060	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	0.768	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.153	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	0.024	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.0047	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	1880	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	373	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	0.0828	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.0165	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Chromium (Cr)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	0.28	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.056	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	0.141	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.0281	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	0.92	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.183	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	20.4	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	4.0	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	1270	2.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	252	0.40	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	1.53	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.305	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-28	508-8	HG-DRY-MICR-CVAF-VA	0.0844	0.0050	mg/kg	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-28	508-8	HG-WET-MICR-CVAF-VA	0.0168	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	11100	10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	2200	2.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	19900	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	3970	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	13.7	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	2.73	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	2.38	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.473	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-28	508-8	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-28	508-8	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	2980	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	593	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	1.34	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Strontium (Sr)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.266	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	0.0125	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	0.00249	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	23.1	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	4.60	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-28	508-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-28	508-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-29	508-9	MOISTURE-MICR-VA	80.1	2.0	%	13-Oct-17		23-Jan-18	805082	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	0.086	0.030	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.0171	0.0060	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	2.60	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.518	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	1.0	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.20	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	0.058	0.010	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.0116	0.0020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	6230	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Calcium (Ca)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	1240	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	0.0877	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.0175	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	0.32	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.064	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	0.398	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.0792	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	1.68	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.335	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	34.7	5.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	6.9	1.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	1310	2.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	260	0.40	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	5.70	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	1.13	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-29	508-9	HG-DRY-MICR-CVAF-VA	0.0646	0.0050	mg/kg	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-29	508-9	HG-WET-MICR-CVAF-VA	0.0129	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	27-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	13200	10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	2630	2.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	19400	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	3870	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	18.3	0.050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	3.63	0.010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	2.74	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.545	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-29	508-9	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-29	508-9	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Sodium (Na)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	3580	20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	713	4.0	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	6.19	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	1.23	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	0.0147	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.00292	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	0.16	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	0.032	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	39.0	1.0	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	7.76	0.20	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-29	508-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-29	508-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	25-Jan-18	29-Jan-18	805064	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-30	508-10	MOISTURE-MICR-VA	80.9	2.0	%	13-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	0.109	0.030	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.0207	0.0060	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	1.00	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.192	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	1.4	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.27	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cadmium (Cd)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	0.020	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.0037	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	2160	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	412	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	0.0798	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.0152	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	0.163	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.0310	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	1.55	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.295	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	20.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	3.8	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	1390	2.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	265	0.40	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	1.98	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.378	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-30	508-10	HG-DRY-MICR-CVAF-VA	0.101	0.0050	mg/kg	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-30	508-10	HG-WET-MICR-CVAF-VA	0.0194	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	11500	10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	2200	2.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	20200	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	3850	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	12.4	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	2.36	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	2.00	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Selenium (Se)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.381	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-30	508-10	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-30	508-10	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	3220	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	615	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	1.89	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.361	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	0.0109	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.00207	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	0.12	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	0.023	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	27.1	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	5.18	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-30	508-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-30	508-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-31	508-11	MOISTURE-MICR-VA	79.3	2.0	%	13-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	0.069	0.030	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.0142	0.0060	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	1.18	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.245	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Bismuth (Bi)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	0.119	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.0245	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	4570	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	943	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	0.0868	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.0179	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	0.182	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.0376	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	1.62	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.335	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	23.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	4.7	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	1170	2.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	241	0.40	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	2.13	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.441	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-31	508-11	HG-DRY-MICR-CVAF-VA	0.0656	0.0050	mg/kg	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-31	508-11	HG-WET-MICR-CVAF-VA	0.0136	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	11900	10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	2460	2.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	19800	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	4090	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Rubidium (Rb)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	18.2	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	3.76	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	1.99	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.412	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-31	508-11	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-31	508-11	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	3350	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	693	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	3.91	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.808	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	0.0101	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	0.00209	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	36.6	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	7.56	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-31	508-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-31	508-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-32	508-12	MOISTURE-MICR-VA	77.6	2.0	%	13-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	0.087	0.030	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	0.0194	0.0060	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	0.794	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	0.178	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Beryllium (Be)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	3580	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	802	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	0.106	0.0050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	0.0237	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	0.040	0.020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	0.0090	0.0040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	1.15	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	0.258	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	14.2	5.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	3.2	1.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	1130	2.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	253	0.40	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	1.62	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	0.363	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-32	508-12	HG-DRY-MICR-CVAF-VA	0.0845	0.0050	mg/kg	13-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-32	508-12	HG-WET-MICR-CVAF-VA	0.0189	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	10500	10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Phosphorus (P)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	2360	2.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	17400	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	3890	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	13.2	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	2.96	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	1.26	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	0.283	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-32	508-12	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-32	508-12	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	2480	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	556	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	3.68	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	0.825	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	0.0068	0.0020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	0.00151	0.00040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	28.7	1.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	6.43	0.20	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-32	508-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-32	508-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-33	509-6	MOISTURE-MICR-VA	79.7	2.0	%	13-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	0.072	0.030	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Arsenic (As)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.0147	0.0060	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	1.12	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.228	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	0.053	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.0108	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	3520	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	712	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	0.112	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.0226	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	0.26	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.052	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	0.100	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.0202	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	1.58	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.320	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	20.9	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	4.2	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	1320	2.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	268	0.40	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	1.95	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.396	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-33	509-6	HG-DRY-MICR-CVAF-VA	0.0812	0.0050	mg/kg	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-33	509-6	HG-WET-MICR-CVAF-VA	0.0165	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Nickel (Ni)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	11400	10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	2320	2.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	20600	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	4170	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	17.8	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	3.60	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	1.91	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.387	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-33	509-6	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-33	509-6	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	3630	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	736	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	2.99	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.605	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	0.0097	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	0.00197	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	25.6	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	5.20	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-33	509-6	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-33	509-6	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-34	509-7	MOISTURE-MICR-VA	79.3	2.0	%	13-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Antimony (Sb)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	0.078	0.030	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.0162	0.0060	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	1.00	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.208	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	0.013	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.0027	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	0.021	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.0044	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	2500	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	518	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	0.254	0.0050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.0527	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	0.57	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.118	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	0.077	0.020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.0160	0.0040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	1.27	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.264	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	14.1	5.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	2.9	1.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	1250	2.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	258	0.40	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	1.57	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.326	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-34	509-7	HG-DRY-MICR-CVAF-VA	0.0807	0.0050	mg/kg	13-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Mercury (Hg)-Total	L2019410-34	509-7	HG-WET-MICR-CVAF-VA	0.0167	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	0.25	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.052	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	10200	10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	2110	2.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	19700	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	4080	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	15.8	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	3.28	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	1.98	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.411	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-34	509-7	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-34	509-7	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	3280	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	680	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	1.58	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.328	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	0.0096	0.0020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	0.00199	0.00040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	24.0	1.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	4.97	0.20	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-34	509-7	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-34	509-7	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-35	509-8	MOISTURE-MICR-VA	79.0	2.0	%	13-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	0.141	0.030	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.0297	0.0060	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	0.628	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.132	0.010	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	0.011	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.0023	0.0020	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	2880	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	606	4.0	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	0.117	0.0050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.0245	0.0010	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	0.094	0.020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.0197	0.0040	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	1.17	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.245	0.040	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	27.9	5.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	5.9	1.0	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	1230	2.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	258	0.40	mg/kg wwt	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Manganese (Mn)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	2.01	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.422	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-35	509-8	HG-DRY-MICR-CVAF-VA	0.0741	0.0050	mg/kg	13-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-35	509-8	HG-WET-MICR-CVAF-VA	0.0156	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	10400	10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	2180	2.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	19300	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	4040	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	16.4	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	3.45	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	1.83	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.385	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-35	509-8	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-35	509-8	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	2810	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	591	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	1.83	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.384	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	0.0106	0.0020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	0.00223	0.00040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	20.3	1.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	4.27	0.20	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-35	509-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Zirconium (Zr)-Total	L2019410-35	509-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-36	509-9	MOISTURE-MICR-VA	79.0	2.0	%	13-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	0.101	0.030	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.0211	0.0060	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	1.01	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.212	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	0.043	0.010	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.0090	0.0020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	3240	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	678	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	0.164	0.0050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.0343	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	0.176	0.020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.0369	0.0040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	1.31	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.274	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	17.0	5.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	3.6	1.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Lithium (Li)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	1270	2.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	265	0.40	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	2.25	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.472	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-36	509-9	HG-DRY-MICR-CVAF-VA	0.0767	0.0050	mg/kg	13-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-36	509-9	HG-WET-MICR-CVAF-VA	0.0161	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	10800	10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	2260	2.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	18500	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	3880	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	23.4	0.050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	4.90	0.010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	2.16	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.452	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-36	509-9	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-36	509-9	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	3080	20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	646	4.0	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	2.64	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.553	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	0.0142	0.0020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	0.00298	0.00040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Zinc (Zn)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	23.7	1.0	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	4.97	0.20	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-36	509-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-36	509-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-37	509-10	MOISTURE-MICR-VA	80.0	2.0	%	13-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	0.075	0.030	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.0150	0.0060	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	1.68	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.336	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	0.021	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.0042	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	5980	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	1200	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	0.173	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.0346	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	0.26	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.051	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	0.185	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.0370	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	1.63	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.325	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	21.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	4.2	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Lead (Pb)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	1480	2.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	297	0.40	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	3.29	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.658	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-37	509-10	HG-DRY-MICR-CVAF-VA	0.118	0.0050	mg/kg	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-37	509-10	HG-WET-MICR-CVAF-VA	0.0236	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	13400	10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	2690	2.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	20700	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	4140	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	20.5	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	4.10	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	1.70	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.340	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-37	509-10	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-37	509-10	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	3490	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	700	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	4.73	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.948	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	0.0156	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	0.00313	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Uranium (U)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	27.1	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	5.43	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-37	509-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-37	509-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-38	509-11	MOISTURE-MICR-VA	79.5	2.0	%	13-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	0.087	0.030	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.0177	0.0060	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	1.26	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.259	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	0.012	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.0025	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	3130	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	641	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	0.112	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.0230	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	0.24	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.049	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	0.074	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.0152	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	1.92	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Copper (Cu)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.394	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	19.8	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	4.1	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	1330	2.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	272	0.40	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	2.06	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.421	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-38	509-11	HG-DRY-MICR-CVAF-VA	0.0733	0.0050	mg/kg	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-38	509-11	HG-WET-MICR-CVAF-VA	0.0150	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	11700	10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	2410	2.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	20100	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	4110	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	15.5	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	3.17	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	1.61	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.331	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-38	509-11	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-38	509-11	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	3540	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	724	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	2.86	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.587	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	0.0085	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.00174	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Tin (Sn)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	0.11	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	0.022	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	33.2	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	6.81	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-38	509-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-38	509-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-39	509-12	MOISTURE-MICR-VA	79.2	2.0	%	13-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	0.114	0.030	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.0237	0.0060	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	1.30	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.270	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	1.0	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.21	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	0.018	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.0037	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	4040	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	842	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	0.122	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.0255	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	0.25	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.051	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cobalt (Co)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	0.134	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.0279	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	1.64	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.342	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	17.6	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	3.7	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	1240	2.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	259	0.40	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	2.44	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.509	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-39	509-12	HG-DRY-MICR-CVAF-VA	0.0762	0.0050	mg/kg	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-39	509-12	HG-WET-MICR-CVAF-VA	0.0159	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	11300	10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	2370	2.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	19300	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	4020	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	17.0	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	3.54	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	1.59	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.332	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-39	509-12	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-39	509-12	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	3110	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	647	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	3.51	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.732	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Tellurium (Te)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	0.0103	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	0.00214	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	29.9	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	6.24	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-39	509-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-39	509-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-40	509-13	MOISTURE-MICR-VA	79.2	2.0	%	13-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	0.060	0.030	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.0125	0.0060	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	0.818	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.170	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	0.051	0.010	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.0106	0.0020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	2230	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	464	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	0.131	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cesium (Cs)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.0273	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	0.184	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.0383	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	1.97	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.409	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	26.0	5.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	5.4	1.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	1270	2.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	265	0.40	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	2.00	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.415	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-40	509-13	HG-DRY-MICR-CVAF-VA	0.0886	0.0050	mg/kg	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-40	509-13	HG-WET-MICR-CVAF-VA	0.0184	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	11000	10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	2290	2.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	19500	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	4060	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	19.9	0.050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	4.14	0.010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	2.37	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.493	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-40	509-13	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-40	509-13	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	3150	20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	655	4.0	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Strontium (Sr)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	1.80	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.374	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	0.0152	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	0.00316	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	26.0	1.0	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	5.40	0.20	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-40	509-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-40	509-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	13-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-41	502-10	MOISTURE-MICR-VA	78.9	2.0	%	14-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	0.101	0.030	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.0213	0.0060	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	0.596	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.125	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Calcium (Ca)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	2910	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	613	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	0.627	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.132	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	0.24	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.050	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	0.047	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.0099	0.0040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	1.93	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.407	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	20.3	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	4.3	1.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	1250	2.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	263	0.40	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	1.49	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.314	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-41	502-10	HG-DRY-MICR-CVAF-VA	0.141	0.0050	mg/kg	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-41	502-10	HG-WET-MICR-CVAF-VA	0.0297	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	11100	10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	2330	2.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	18300	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	3840	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	14.0	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	2.95	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	2.27	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.479	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-41	502-10	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Silver (Ag)-Total	L2019410-41	502-10	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	2550	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	536	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	2.17	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.457	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	0.0143	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	0.00300	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	24.9	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	5.23	0.20	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-41	502-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-41	502-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-42	502-11	MOISTURE-MICR-VA	78.0	2.0	%	14-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	0.117	0.030	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.0256	0.0060	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	1.53	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.337	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Boron (B)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	0.013	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.0028	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	7280	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	1600	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	0.664	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.146	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	0.31	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.068	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	0.084	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.0185	0.0040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	1.88	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.415	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	24.7	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	5.4	1.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	1330	2.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	293	0.40	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	2.74	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.604	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-42	502-11	HG-DRY-MICR-CVAF-VA	0.0657	0.0050	mg/kg	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-42	502-11	HG-WET-MICR-CVAF-VA	0.0145	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	0.25	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.056	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	13100	10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	2880	2.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	18000	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	3960	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	15.0	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	3.30	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Selenium (Se)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	2.18	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.480	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-42	502-11	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-42	502-11	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	2630	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	578	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	6.60	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	1.45	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	0.0132	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	0.00290	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	38.8	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	8.53	0.20	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-42	502-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-42	502-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-43	502-12	MOISTURE-MICR-VA	77.2	2.0	%	14-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	0.130	0.030	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	0.0296	0.0060	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	0.468	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	0.107	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Bismuth (Bi)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	2860	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	653	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	0.632	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	0.144	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	0.044	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	0.0100	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	1.62	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	0.370	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	18.1	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	4.1	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	1130	2.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	258	0.40	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	1.30	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	0.297	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-43	502-12	HG-DRY-MICR-CVAF-VA	0.0947	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-43	502-12	HG-WET-MICR-CVAF-VA	0.0216	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	9990	10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	2280	2.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	15700	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Potassium (K)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	3590	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	13.2	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	3.00	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	2.13	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	0.486	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-43	502-12	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-43	502-12	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	2480	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	567	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	2.06	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	0.471	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	0.0131	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	0.00300	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	29.8	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	6.79	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-43	502-12	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-43	502-12	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-44	502-13	MOISTURE-MICR-VA	76.5	2.0	%	14-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	0.158	0.030	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.0370	0.0060	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	0.301	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Barium (Ba)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.071	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	2030	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	476	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	0.804	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.189	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	0.075	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.0175	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	2.26	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.531	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	18.8	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	4.4	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	988	2.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	232	0.40	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	0.682	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.160	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-44	502-13	HG-DRY-MICR-CVAF-VA	0.0771	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-44	502-13	HG-WET-MICR-CVAF-VA	0.0181	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Phosphorus (P)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	8790	10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	2060	2.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	16200	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	3810	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	18.0	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	4.22	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	2.71	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.636	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-44	502-13	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-44	502-13	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	2550	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	598	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	1.18	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.277	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	0.0191	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	0.00447	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.00020	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	29.0	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	6.79	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-44	502-13	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-44	502-13	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-45	502-14	MOISTURE-MICR-VA	76.2	2.0	%	14-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Arsenic (As)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	0.220	0.030	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.0523	0.0060	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	0.400	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.095	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.0024	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	1840	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	438	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	0.762	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.181	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	0.054	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.0129	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	2.16	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.515	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	20.7	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	4.9	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	1010	2.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	241	0.40	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	0.876	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.208	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-45	502-14	HG-DRY-MICR-CVAF-VA	0.0788	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-45	502-14	HG-WET-MICR-CVAF-VA	0.0187	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Molybdenum (Mo)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	8820	10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	2100	2.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	15500	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	3680	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	15.7	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	3.74	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	2.99	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.710	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-45	502-14	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-45	502-14	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	2610	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	622	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	1.23	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.293	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	0.0183	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.00435	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	25.5	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	6.07	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-45	502-14	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-45	502-14	MET-WET-MICR-HRMS-VA	0.046	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-46	502-15	MOISTURE-MICR-VA	76.0	2.0	%	14-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Aluminum (Al)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	0.206	0.030	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.0494	0.0060	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	0.744	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.178	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	2510	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	601	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	0.669	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.160	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	0.041	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.0099	0.0040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	1.41	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.339	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	14.7	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	3.5	1.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	1230	2.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	295	0.40	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	1.61	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.386	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Mercury (Hg)-Total	L2019410-46	502-15	HG-DRY-MICR-CVAF-VA	0.0786	0.0050	mg/kg	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-46	502-15	HG-WET-MICR-CVAF-VA	0.0188	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	10700	10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	2570	2.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	17900	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	4290	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	14.0	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	3.36	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	1.79	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.429	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-46	502-15	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-46	502-15	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	2310	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	554	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	2.31	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.554	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	0.0170	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.00407	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	0.18	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	0.044	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	20.9	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	5.02	0.20	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-46	502-15	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-46	502-15	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Physical Tests (Tissue)														
% Moisture	L2019410-47	502-16	MOISTURE-MICR-VA	76.7	2.0	%	14-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	0.226	0.030	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.0527	0.0060	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	0.599	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.140	0.010	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	1600	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	374	4.0	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	0.894	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.208	0.0010	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	0.29	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.068	0.040	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	0.044	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.0104	0.0040	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	2.26	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.527	0.040	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	21.3	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	5.0	1.0	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg wwt	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Magnesium (Mg)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	1110	2.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	259	0.40	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	0.904	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.211	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-47	502-16	HG-DRY-MICR-CVAF-VA	0.0918	0.0050	mg/kg	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-47	502-16	HG-WET-MICR-CVAF-VA	0.0214	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	9260	10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	2160	2.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	17600	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	4090	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	17.0	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	3.96	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	2.50	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.582	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-47	502-16	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-47	502-16	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	2730	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	635	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	1.20	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.281	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	0.0167	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	0.00390	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	25.0	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Zinc (Zn)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	5.82	0.20	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-47	502-16	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-47	502-16	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-48	502-17	MOISTURE-MICR-VA	77.3	2.0	%	14-Oct-17		24-Jan-18	805446	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	0.164	0.030	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	0.0373	0.0060	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	0.897	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	0.204	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	5980	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	1360	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	0.835	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	0.190	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	0.098	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	0.0222	0.0040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	1.55	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	0.352	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	15.9	5.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	3.6	1.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Lead (Pb)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	1280	2.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	291	0.40	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	2.36	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	0.536	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-48	502-17	HG-DRY-MICR-CVAF-VA	0.0927	0.0050	mg/kg	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-48	502-17	HG-WET-MICR-CVAF-VA	0.0211	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	31-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	12300	10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	2810	2.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	18700	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	4250	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	17.8	0.050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	4.05	0.010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	2.42	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	0.551	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-48	502-17	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-48	502-17	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	2730	20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	621	4.0	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	5.18	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	1.18	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	0.0213	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	0.00483	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Vanadium (V)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	25.7	1.0	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	5.84	0.20	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-48	502-17	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-48	502-17	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	28-Jan-18	29-Jan-18	805445	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-49	512-6	MOISTURE-TISS-VA	77.4	0.50	%	14-Oct-17		24-Jan-18	805438	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<2.0	2.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.40	0.40	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	0.157	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.0355	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	0.778	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.176	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	2990	20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	677	4.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	0.0359	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.0081	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	0.107	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.024	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	0.027	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.0061	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	1.67	0.10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.378	0.020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Iron (Fe)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	16.3	3.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	3.69	0.60	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	1310	2.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	297	0.40	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	1.17	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.264	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-49	512-6	HG-DRY-CVAFS-N-VA	0.0884	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-49	512-6	HG-WET-CVAFS-N-VA	0.0200	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	12100	10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	2730	2.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	18200	20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	4110	4.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	6.21	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	1.40	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	1.30	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.295	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-49	512-6	AG-DRY-CCMS-N-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-49	512-6	AG-WET-CCMS-N-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	2360	20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	534	4.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	2.89	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.654	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	0.0072	0.0020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	0.00164	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Tin (Sn)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.0020	0.0020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	23.3	0.50	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	5.26	0.10	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-49	512-6	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-49	512-6	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-50	512-7	MOISTURE-MICR-VA	79.2	2.0	%	14-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	0.166	0.030	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.0346	0.0060	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	1.45	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.301	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	0.016	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.0033	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	3990	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	831	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	0.0303	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.0063	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	0.086	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cobalt (Co)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.0180	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	0.99	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.206	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	10.1	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	2.1	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	1120	2.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	233	0.40	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	2.95	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.614	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-50	512-7	HG-DRY-MICR-CVAF-VA	0.0908	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-50	512-7	HG-WET-MICR-CVAF-VA	0.0189	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	10100	10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	2110	2.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	17500	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	3640	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	6.92	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	1.44	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	1.30	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.270	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-50	512-7	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-50	512-7	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	2730	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	568	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	3.41	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.711	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Thallium (Tl)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	0.0072	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	0.00151	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	30.9	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	6.44	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-50	512-7	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-50	512-7	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-51	512-8	MOISTURE-MICR-VA	79.2	2.0	%	14-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	0.754	0.030	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	0.156	0.0060	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	2.07	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	0.430	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	4760	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	987	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	0.0459	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	0.0095	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Chromium (Cr)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	0.044	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	0.0091	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	1.04	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	0.216	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	10.4	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	2.2	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	1280	2.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	265	0.40	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	6.30	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	1.31	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-51	512-8	HG-DRY-MICR-CVAF-VA	0.111	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-51	512-8	HG-WET-MICR-CVAF-VA	0.0231	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	12100	10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	2510	2.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	19300	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	4000	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	12.6	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	2.61	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	1.25	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	0.259	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-51	512-8	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-51	512-8	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	2850	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	591	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	5.32	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Strontium (Sr)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	1.10	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	0.0086	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	0.00178	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	27.5	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	5.71	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-51	512-8	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-51	512-8	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-52	512-9	MOISTURE-MICR-VA	77.7	2.0	%	14-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<5.0	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<1.0	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	0.320	0.030	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.0714	0.0060	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	0.816	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.182	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	2080	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Calcium (Ca)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	465	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	0.0251	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.0056	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.042	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	0.070	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.0156	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	1.46	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.325	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	15.3	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	3.4	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	1040	2.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	233	0.40	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	1.73	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.387	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-52	512-9	HG-DRY-MICR-CVAF-VA	0.101	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-52	512-9	HG-WET-MICR-CVAF-VA	0.0226	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	9000	10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	2010	2.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	15700	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	3510	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	6.95	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	1.55	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	1.29	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.287	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-52	512-9	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-52	512-9	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Sodium (Na)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	2600	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	580	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	1.80	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.402	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	0.0084	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.00187	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	0.12	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	0.028	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	28.6	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	6.38	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-52	512-9	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-52	512-9	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-53	512-10	MOISTURE-MICR-VA	81.3	2.0	%	14-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	21.8	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	4.1	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	0.341	0.030	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.0639	0.0060	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	6.63	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	1.24	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Cadmium (Cd)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	0.049	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.0092	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	8960	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	1680	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	0.0552	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.0103	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	0.44	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.083	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	0.345	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.0646	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	1.37	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.257	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	80.2	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	15.0	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	1290	2.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	241	0.40	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	9.64	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	1.81	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-53	512-10	HG-DRY-MICR-CVAF-VA	0.160	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-53	512-10	HG-WET-MICR-CVAF-VA	0.0299	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	0.96	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.179	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	13800	10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	2590	2.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	19300	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	3610	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	14.5	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	2.71	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	2.85	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Selenium (Se)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.533	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-53	512-10	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-53	512-10	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	3850	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	722	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	7.52	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	1.41	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	0.0144	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.00269	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	2.16	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.404	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	0.0030	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	0.00057	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	53.3	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	9.99	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-53	512-10	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-53	512-10	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-54	512-11	MOISTURE-MICR-VA	79.2	2.0	%	14-Oct-17		22-Jan-18	804318	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	6.6	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	1.4	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	0.157	0.030	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✗	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.0327	0.0060	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	2.09	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.436	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Bismuth (Bi)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	3550	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	741	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	0.0331	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.0069	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	0.097	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.0202	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	0.98	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.205	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	17.7	5.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	3.7	1.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.050	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.010	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	1180	2.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	247	0.40	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	3.49	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.726	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-54	512-11	HG-DRY-MICR-CVAF-VA	0.0830	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-54	512-11	HG-WET-MICR-CVAF-VA	0.0173	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.040	0.040	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.0080	0.0080	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	10600	10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	2210	2.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	17000	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	3540	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Rubidium (Rb)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	8.59	0.050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	1.79	0.010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	1.26	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.262	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-54	512-11	AG-DRY-MICR-HRMS-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-54	512-11	AG-WET-MICR-HRMS-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	2600	20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	541	4.0	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	4.07	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.848	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	0.0064	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.00134	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	0.34	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	0.071	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.0020	0.0020	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	31.8	1.0	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	6.63	0.20	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-54	512-11	MET-DRY-MICR-HRMS-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-54	512-11	MET-WET-MICR-HRMS-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	25-Jan-18	804300	✓	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-55	512-12	MOISTURE-TISS-VA	79.2	0.50	%	14-Oct-17		24-Jan-18	805438	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	3.7	2.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.76	0.40	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	0.482	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.100	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	0.710	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.148	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Beryllium (Be)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	0.0081	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.0017	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	2250	20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	468	4.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	0.0350	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.0073	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	0.103	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.021	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	0.058	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.0120	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	1.73	0.10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.360	0.020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	16.0	3.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	3.33	0.60	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	1300	2.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	270	0.40	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	1.76	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.366	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-55	512-12	HG-DRY-CVAFS-N-VA	0.153	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-55	512-12	HG-WET-CVAFS-N-VA	0.0318	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	12300	10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Phosphorus (P)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	2560	2.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	20000	20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	4160	4.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	8.27	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	1.72	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	1.24	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.257	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-55	512-12	AG-DRY-CCMS-N-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-55	512-12	AG-WET-CCMS-N-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	2450	20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	509	4.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	2.15	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.447	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	0.0068	0.0020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	0.00141	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.0020	0.0020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	26.5	0.50	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	5.51	0.10	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-55	512-12	MET-DRY-CCMS-N-VA	<0.20	0.20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-55	512-12	MET-WET-CCMS-N-VA	<0.040	0.040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Physical Tests (Tissue)														
% Moisture	L2019410-56	512-13	MOISTURE-TISS-VA	79.4	0.50	%	14-Oct-17		24-Jan-18	805438	✓	✓	Tissue	Physical Tests
Metals (Tissue)														
Aluminum (Al)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	2.7	2.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Aluminum (Al)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.55	0.40	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Antimony (Sb)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Arsenic (As)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	0.225	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Arsenic (As)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.0462	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	0.711	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Barium (Ba)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.146	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Beryllium (Be)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.010	0.010	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Bismuth (Bi)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.0020	0.0020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<1.0	1.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Boron (B)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.20	0.20	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	0.0172	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cadmium (Cd)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.0035	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	2760	20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Calcium (Ca)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	568	4.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	0.0514	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cesium (Cs)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.0106	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	0.187	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Chromium (Cr)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.038	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	0.034	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Cobalt (Co)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.0070	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	1.59	0.10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Copper (Cu)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.326	0.020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	21.6	3.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Iron (Fe)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	4.45	0.60	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lead (Pb)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.50	0.50	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Lithium (Li)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.10	0.10	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	1330	2.0	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Magnesium (Mg)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	273	0.40	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	1.80	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Manganese (Mn)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.371	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-56	512-13	HG-DRY-CVAFS-N-VA	0.124	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Mercury (Hg)-Total	L2019410-56	512-13	HG-WET-CVAFS-N-VA	0.0255	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Molybdenum (Mo)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Results of Analysis L2019410

Job Reference	0403488-0008	Evaluation Legend	
Report To	Genevieve Morinville, ERM Consultants Canada Ltd.	✓	QC Lot met ALS Data Quality Objectives or Test result met ALS Hold Time Recommendations
Date Received	7-Nov-2017 22:49	✗	QC Lot did not meet ALS Data Quality Objectives or Test result did not meet ALS Hold Time Recommendations
Report Date	31-Jan-2018 15:34		
Report Version	1		

Parameter	ALS ID	Client Sample ID	ALS Test Code	Results	Detection Limit	Units	Date Sampled	Prep Date	Analysis Date	QC Lot	QC Eval	Hold Time Eval	Matrix	Class
Nickel (Ni)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	0.21	0.20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Nickel (Ni)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.044	0.040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	12500	10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Phosphorus (P)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	2570	2.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	20200	20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Potassium (K)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	4140	4.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	11.0	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Rubidium (Rb)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	2.26	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	1.51	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Selenium (Se)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.310	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-56	512-13	AG-DRY-CCMS-N-VA	<0.0050	0.0050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Silver (Ag)-Total	L2019410-56	512-13	AG-WET-CCMS-N-VA	<0.0010	0.0010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	2510	20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Sodium (Na)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	516	4.0	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	2.35	0.050	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Strontium (Sr)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.483	0.010	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.020	0.020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tellurium (Te)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.0040	0.0040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	0.0078	0.0020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Thallium (Tl)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.00161	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Tin (Sn)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.0020	0.0020	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Uranium (U)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.00040	0.00040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	<0.10	0.10	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Vanadium (V)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	<0.020	0.020	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	21.9	0.50	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zinc (Zn)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	4.51	0.10	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✓	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-56	512-13	MET-DRY-CCMS-N-VA	0.41	0.20	mg/kg	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals
Zirconium (Zr)-Total	L2019410-56	512-13	MET-WET-CCMS-N-VA	0.085	0.040	mg/kg ww	14-Oct-17	24-Jan-18	26-Jan-18	805430	✗	✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Duplicates L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

DUP-H Duplicate results outside ALS DQO, due to sample heterogeneity.

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

ALS ID	Reference	Client Sample ID	QC Type	QC Lot #	Analyte	Sample Result	Duplicate Result	Detection Limit	Units	RPD	RPD Limit	Diff	Diff Limit	Qual	Eval	Matrix	Class
Physical Tests (Tissue)																	
WG2702677-3	L2019410-4	505-11	DUP	804318	% Moisture	77.7	77.8	2.0	%	0.2	25	-			✓	Tissue	Physical Tests
WG2703661-3	L2019410-9	501-11	DUP	805082	% Moisture	77.8	77.6	2.0	%	0.3	25	-			✓	Tissue	Physical Tests
WG2704113-3	L2019410-14	501-16	DUP	805438	% Moisture	78.3	76.5	0.50	%	2.4	20	-			✓	Tissue	Physical Tests
WG2704125-3	L2019410-30	508-10	DUP	805446	% Moisture	80.9	80.4	2.0	%	0.6	25	-			✓	Tissue	Physical Tests
Metals (Tissue)																	
WG2702663-2	L2019410-4	505-11	DUP	804300	Aluminum (Al)-Total	<5.0	<5.0	5.0	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Aluminum (Al)-Total	<5.0	<5.0	5.0	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Aluminum (Al)-Total	2.7	4.1	2.0	mg/kg	-		1.4	4		✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Aluminum (Al)-Total	<5.0	<5.0	5.0	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Aluminum (Al)-Total	<1.0	<1.0	1.0	mg/kg wwt	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Aluminum (Al)-Total	<1.0	<1.0	1.0	mg/kg wwt	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Aluminum (Al)-Total	0.55	0.84	0.40	mg/kg wwt	-		0.29	0.8		✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Aluminum (Al)-Total	<1.0	<1.0	1.0	mg/kg wwt	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Antimony (Sb)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Antimony (Sb)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Antimony (Sb)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Antimony (Sb)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Antimony (Sb)-Total	<0.0020	<0.0020	0.0020	mg/kg wwt	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Antimony (Sb)-Total	<0.0020	<0.0020	0.0020	mg/kg wwt	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Antimony (Sb)-Total	<0.0020	<0.0020	0.0020	mg/kg wwt	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Antimony (Sb)-Total	<0.0020	<0.0020	0.0020	mg/kg wwt	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Arsenic (As)-Total	0.092	0.084	0.030	mg/kg	8.9	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Arsenic (As)-Total	0.070	0.070	0.030	mg/kg	0.6	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Arsenic (As)-Total	0.225	0.224	0.020	mg/kg	0.5	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Arsenic (As)-Total	0.109	0.117	0.030	mg/kg	7.6	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Arsenic (As)-Total	0.0206	0.0188	0.0060	mg/kg wwt	8.9	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Arsenic (As)-Total	0.0155	0.0154	0.0060	mg/kg wwt	0.6	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Arsenic (As)-Total	0.0462	0.0460	0.0040	mg/kg wwt	0.5	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Arsenic (As)-Total	0.0207	0.0224	0.0060	mg/kg wwt	7.6	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Barium (Ba)-Total	0.606	0.477	0.050	mg/kg	24	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Barium (Ba)-Total	1.04	0.879	0.050	mg/kg	16	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Barium (Ba)-Total	0.711	0.656	0.050	mg/kg	8.1	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Barium (Ba)-Total	1.00	1.78	0.050	mg/kg	56	40	-		DUP-H	✗	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Barium (Ba)-Total	0.136	0.106	0.010	mg/kg wwt	24	40	-			✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Duplicates L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

DUP-H Duplicate results outside ALS DQO, due to sample heterogeneity.

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

ALS ID	Reference	Client Sample ID	QC Type	QC Lot #	Analyte	Sample Result	Duplicate Result	Detection Limit	Units	RPD	RPD Limit	Diff	Diff Limit	Qual	Eval	Matrix	Class
WG2703646-2	L2019410-9	501-11	DUP	805064	Barium (Ba)-Total	0.230	0.195	0.010	mg/kg ww	16	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Barium (Ba)-Total	0.146	0.135	0.010	mg/kg ww	8.1	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Barium (Ba)-Total	0.192	0.341	0.010	mg/kg ww	56	40	-		DUP-H	✗	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Beryllium (Be)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Beryllium (Be)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Beryllium (Be)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Beryllium (Be)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Beryllium (Be)-Total	<0.0020	<0.0020	0.0020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Beryllium (Be)-Total	<0.0020	<0.0020	0.0020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Beryllium (Be)-Total	<0.0020	<0.0020	0.0020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Beryllium (Be)-Total	<0.0020	<0.0020	0.0020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Bismuth (Bi)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Bismuth (Bi)-Total	0.050	<0.010	0.010	mg/kg	N/A	40	-		DUP-H	✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Bismuth (Bi)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Bismuth (Bi)-Total	<0.010	<0.010	0.010	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Bismuth (Bi)-Total	<0.0020	<0.0020	0.0020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Bismuth (Bi)-Total	0.0111	<0.0020	0.0020	mg/kg ww	N/A	40	-		DUP-H	✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Bismuth (Bi)-Total	<0.0020	<0.0020	0.0020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Bismuth (Bi)-Total	<0.0020	<0.0020	0.0020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Boron (B)-Total	<1.0	<1.0	1.0	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Boron (B)-Total	<1.0	<1.0	1.0	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Boron (B)-Total	<1.0	<1.0	1.0	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Boron (B)-Total	1.4	1.1	1.0	mg/kg	23	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Boron (B)-Total	<0.20	<0.20	0.20	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Boron (B)-Total	<0.20	<0.20	0.20	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Boron (B)-Total	<0.20	<0.20	0.20	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Boron (B)-Total	0.27	0.21	0.20	mg/kg ww	23	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Cadmium (Cd)-Total	0.024	0.024	0.010	mg/kg	0.2	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Cadmium (Cd)-Total	0.018	0.011	0.010	mg/kg	-		0.007	0.02		✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Cadmium (Cd)-Total	0.0172	0.0159	0.0050	mg/kg	7.7	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Cadmium (Cd)-Total	0.020	0.027	0.010	mg/kg	31	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Cadmium (Cd)-Total	0.0054	0.0054	0.0020	mg/kg ww	0.2	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Cadmium (Cd)-Total	0.0041	0.0025	0.0020	mg/kg ww	-		0.0015	0.004		✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Cadmium (Cd)-Total	0.0035	0.0033	0.0010	mg/kg ww	7.7	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Cadmium (Cd)-Total	0.0037	0.0051	0.0020	mg/kg ww	31	40	-			✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Duplicates L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

DUP-H Duplicate results outside ALS DQO, due to sample heterogeneity.

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

ALS ID	Reference	Client Sample ID	QC Type	QC Lot #	Analyte	Sample Result	Duplicate Result	Detection Limit	Units	RPD	RPD Limit	Diff	Diff Limit	Qual	Eval	Matrix	Class
WG2702663-2	L2019410-4	505-11	DUP	804300	Calcium (Ca)-Total	2530	2010	20	mg/kg	23	60	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Calcium (Ca)-Total	4020	3110	20	mg/kg	26	60	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Calcium (Ca)-Total	2760	1820	20	mg/kg	41	60	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Calcium (Ca)-Total	2160	4880	20	mg/kg	77	60	-		DUP-H	✗	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Calcium (Ca)-Total	566	450	4.0	mg/kg ww	23	60	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Calcium (Ca)-Total	890	688	4.0	mg/kg ww	26	60	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Calcium (Ca)-Total	568	373	4.0	mg/kg ww	41	60	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Calcium (Ca)-Total	412	931	4.0	mg/kg ww	77	60	-		DUP-H	✗	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Cesium (Cs)-Total	0.447	0.419	0.0050	mg/kg	6.3	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Cesium (Cs)-Total	0.869	0.831	0.0050	mg/kg	4.5	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Cesium (Cs)-Total	0.0514	0.0488	0.0050	mg/kg	5.1	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Cesium (Cs)-Total	0.0798	0.0754	0.0050	mg/kg	5.6	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Cesium (Cs)-Total	0.0998	0.0937	0.0010	mg/kg ww	6.3	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Cesium (Cs)-Total	0.193	0.184	0.0010	mg/kg ww	4.5	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Cesium (Cs)-Total	0.0106	0.0100	0.0010	mg/kg ww	5.1	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Cesium (Cs)-Total	0.0152	0.0144	0.0010	mg/kg ww	5.6	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Chromium (Cr)-Total	0.27	<0.20	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Chromium (Cr)-Total	0.36	<0.20	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Chromium (Cr)-Total	0.187	0.257	0.050	mg/kg	32	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Chromium (Cr)-Total	<0.20	0.22	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Chromium (Cr)-Total	0.060	<0.040	0.040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Chromium (Cr)-Total	0.079	0.043	0.040	mg/kg ww	-		0.036	0.08		✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Chromium (Cr)-Total	0.038	0.053	0.010	mg/kg ww	32	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Chromium (Cr)-Total	<0.040	0.041	0.040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Cobalt (Co)-Total	0.178	0.156	0.020	mg/kg	13	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Cobalt (Co)-Total	0.072	0.063	0.020	mg/kg	14	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Cobalt (Co)-Total	0.034	0.035	0.020	mg/kg	2.1	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Cobalt (Co)-Total	0.163	0.178	0.020	mg/kg	9.2	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Cobalt (Co)-Total	0.0398	0.0348	0.0040	mg/kg ww	13	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Cobalt (Co)-Total	0.0161	0.0140	0.0040	mg/kg ww	14	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Cobalt (Co)-Total	0.0070	0.0071	0.0040	mg/kg ww	2.1	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Cobalt (Co)-Total	0.0310	0.0341	0.0040	mg/kg ww	9.2	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Copper (Cu)-Total	2.05	2.35	0.20	mg/kg	14	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Copper (Cu)-Total	1.58	1.70	0.20	mg/kg	7.3	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Copper (Cu)-Total	1.59	1.26	0.10	mg/kg	23	40	-			✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Duplicates L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

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Report Version 1

Qualifier Legend

DUP-H Duplicate results outside ALS DQO, due to sample heterogeneity.

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

ALS ID	Reference	Client Sample ID	QC Type	QC Lot #	Analyte	Sample Result	Duplicate Result	Detection Limit	Units	RPD	RPD Limit	Diff	Diff Limit	Qual	Eval	Matrix	Class
WG2704117-6	L2019410-30	508-10	DUP	805445	Copper (Cu)-Total	1.55	1.83	0.20	mg/kg	17	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Copper (Cu)-Total	0.459	0.526	0.040	mg/kg ww	14	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Copper (Cu)-Total	0.350	0.377	0.040	mg/kg ww	7.3	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Copper (Cu)-Total	0.326	0.259	0.020	mg/kg ww	23	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Copper (Cu)-Total	0.295	0.349	0.040	mg/kg ww	17	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Iron (Fe)-Total	20.9	22.5	5.0	mg/kg	7.6	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Iron (Fe)-Total	15.7	15.2	5.0	mg/kg	3.4	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Iron (Fe)-Total	21.6	18.8	3.0	mg/kg	14	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Iron (Fe)-Total	20.0	24.2	5.0	mg/kg	19	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Iron (Fe)-Total	4.7	5.0	1.0	mg/kg ww	7.6	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Iron (Fe)-Total	3.5	3.4	1.0	mg/kg ww	3.4	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Iron (Fe)-Total	4.45	3.87	0.60	mg/kg ww	14	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Iron (Fe)-Total	3.8	4.6	1.0	mg/kg ww	19	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Lead (Pb)-Total	<0.050	<0.050	0.050	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Lead (Pb)-Total	<0.050	<0.050	0.050	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Lead (Pb)-Total	<0.020	<0.020	0.020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Lead (Pb)-Total	<0.050	<0.050	0.050	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Lead (Pb)-Total	<0.010	<0.010	0.010	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Lead (Pb)-Total	<0.010	<0.010	0.010	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Lead (Pb)-Total	<0.0040	<0.0040	0.0040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Lead (Pb)-Total	<0.010	<0.010	0.010	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Lithium (Li)-Total	<0.50	<0.50	0.50	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Lithium (Li)-Total	<0.50	<0.50	0.50	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Lithium (Li)-Total	<0.50	<0.50	0.50	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Lithium (Li)-Total	<0.50	<0.50	0.50	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Lithium (Li)-Total	<0.10	<0.10	0.10	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Lithium (Li)-Total	<0.10	<0.10	0.10	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Lithium (Li)-Total	<0.10	<0.10	0.10	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Lithium (Li)-Total	<0.10	<0.10	0.10	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Magnesium (Mg)-Total	1080	1060	2.0	mg/kg	1.8	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Magnesium (Mg)-Total	1250	1080	2.0	mg/kg	14	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Magnesium (Mg)-Total	1330	1390	2.0	mg/kg	4.7	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Magnesium (Mg)-Total	1390	1440	2.0	mg/kg	3.8	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Magnesium (Mg)-Total	242	238	0.40	mg/kg ww	1.8	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Magnesium (Mg)-Total	277	240	0.40	mg/kg ww	14	40	-			✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Duplicates L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

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Report Version 1

Qualifier Legend

DUP-H Duplicate results outside ALS DQO, due to sample heterogeneity.

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

ALS ID	Reference	Client Sample ID	QC Type	QC Lot #	Analyte	Sample Result	Duplicate Result	Detection Limit	Units	RPD	RPD Limit	Diff	Diff Limit	Qual	Eval	Matrix	Class
WG2704091-2	L2019410-56	512-13	DUP	805430	Magnesium (Mg)-Total	273	286	0.40	mg/kg ww	4.7	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Magnesium (Mg)-Total	265	275	0.40	mg/kg ww	3.8	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Manganese (Mn)-Total	0.951	0.774	0.050	mg/kg	21	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Manganese (Mn)-Total	2.01	1.18	0.050	mg/kg	52	40	-	DUP-H	✗	✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Manganese (Mn)-Total	1.80	1.33	0.050	mg/kg	30	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Manganese (Mn)-Total	1.98	4.49	0.050	mg/kg	78	40	-	DUP-H	✗	✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Manganese (Mn)-Total	0.213	0.173	0.010	mg/kg ww	21	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Manganese (Mn)-Total	0.446	0.262	0.010	mg/kg ww	52	40	-	DUP-H	✗	✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Manganese (Mn)-Total	0.371	0.273	0.010	mg/kg ww	30	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Manganese (Mn)-Total	0.378	0.858	0.010	mg/kg ww	78	40	-	DUP-H	✗	✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Mercury (Hg)-Total	0.112	0.113	0.0050	mg/kg	0.2	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Mercury (Hg)-Total	0.0621	0.0621	0.0050	mg/kg	0.1	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Mercury (Hg)-Total	0.124	0.126	0.0050	mg/kg	1.3	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Mercury (Hg)-Total	0.101	0.0954	0.0050	mg/kg	6.1	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Mercury (Hg)-Total	0.0251	0.0252	0.0010	mg/kg ww	0.2	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Mercury (Hg)-Total	0.0138	0.0138	0.0010	mg/kg ww	0.1	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Mercury (Hg)-Total	0.0255	0.0259	0.0010	mg/kg ww	1.3	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Mercury (Hg)-Total	0.0194	0.0182	0.0010	mg/kg ww	6.1	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Molybdenum (Mo)-Total	<0.040	<0.040	0.040	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Molybdenum (Mo)-Total	<0.040	<0.040	0.040	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Molybdenum (Mo)-Total	<0.020	<0.020	0.020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Molybdenum (Mo)-Total	<0.040	<0.040	0.040	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Molybdenum (Mo)-Total	<0.0080	<0.0080	0.0080	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Molybdenum (Mo)-Total	<0.0080	<0.0080	0.0080	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Molybdenum (Mo)-Total	<0.0040	<0.0040	0.0040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Molybdenum (Mo)-Total	<0.0080	<0.0080	0.0080	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Nickel (Ni)-Total	<0.20	<0.20	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Nickel (Ni)-Total	<0.20	<0.20	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Nickel (Ni)-Total	0.21	<0.20	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Nickel (Ni)-Total	<0.20	<0.20	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Nickel (Ni)-Total	<0.040	<0.040	0.040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Nickel (Ni)-Total	<0.040	<0.040	0.040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Nickel (Ni)-Total	0.044	<0.040	0.040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Nickel (Ni)-Total	<0.040	<0.040	0.040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Phosphorus (P)-Total	9790	9390	10	mg/kg	4.1	40	-			✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Duplicates L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

DUP-H Duplicate results outside ALS DQO, due to sample heterogeneity.

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

ALS ID	Reference	Client Sample ID	QC Type	QC Lot #	Analyte	Sample Result	Duplicate Result	Detection Limit	Units	RPD	RPD Limit	Diff	Diff Limit	Qual	Eval	Matrix	Class
WG2703646-2	L2019410-9	501-11	DUP	805064	Phosphorus (P)-Total	11500	10200	10	mg/kg	12	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Phosphorus (P)-Total	12500	12600	10	mg/kg	0.7	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Phosphorus (P)-Total	11500	13400	10	mg/kg	15	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Phosphorus (P)-Total	2190	2100	2.0	mg/kg ww	4.1	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Phosphorus (P)-Total	2550	2260	2.0	mg/kg ww	12	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Phosphorus (P)-Total	2570	2580	2.0	mg/kg ww	0.7	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Phosphorus (P)-Total	2200	2570	2.0	mg/kg ww	15	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Potassium (K)-Total	17500	17900	20	mg/kg	2.4	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Potassium (K)-Total	18100	17600	20	mg/kg	2.6	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Potassium (K)-Total	20200	20900	20	mg/kg	3.8	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Potassium (K)-Total	20200	20900	20	mg/kg	3.6	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Potassium (K)-Total	3900	4000	4.0	mg/kg ww	2.4	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Potassium (K)-Total	4010	3910	4.0	mg/kg ww	2.6	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Potassium (K)-Total	4140	4300	4.0	mg/kg ww	3.8	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Potassium (K)-Total	3850	3990	4.0	mg/kg ww	3.6	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Rubidium (Rb)-Total	22.2	21.2	0.050	mg/kg	4.5	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Rubidium (Rb)-Total	16.8	16.0	0.050	mg/kg	5.1	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Rubidium (Rb)-Total	11.0	11.3	0.050	mg/kg	3.1	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Rubidium (Rb)-Total	12.4	11.9	0.050	mg/kg	4	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Rubidium (Rb)-Total	4.96	4.74	0.010	mg/kg ww	4.5	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Rubidium (Rb)-Total	3.73	3.54	0.010	mg/kg ww	5.1	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Rubidium (Rb)-Total	2.26	2.33	0.010	mg/kg ww	3.1	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Rubidium (Rb)-Total	2.36	2.27	0.010	mg/kg ww	4	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Selenium (Se)-Total	1.69	1.75	0.10	mg/kg	3.3	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Selenium (Se)-Total	2.50	2.48	0.10	mg/kg	0.8	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Selenium (Se)-Total	1.51	1.54	0.050	mg/kg	1.9	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Selenium (Se)-Total	2.00	2.04	0.10	mg/kg	2.2	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Selenium (Se)-Total	0.378	0.391	0.020	mg/kg ww	3.3	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Selenium (Se)-Total	0.554	0.550	0.020	mg/kg ww	0.8	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Selenium (Se)-Total	0.310	0.316	0.010	mg/kg ww	1.9	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Selenium (Se)-Total	0.381	0.390	0.020	mg/kg ww	2.2	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Silver (Ag)-Total	<0.0050	<0.0050	0.0050	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Silver (Ag)-Total	<0.0050	<0.0050	0.0050	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Silver (Ag)-Total	<0.0050	<0.0050	0.0050	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Silver (Ag)-Total	<0.0050	<0.0050	0.0050	mg/kg	N/A	40	-			✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Duplicates L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

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Report Version 1

Qualifier Legend

DUP-H Duplicate results outside ALS DQO, due to sample heterogeneity.

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

ALS ID	Reference	Client Sample ID	QC Type	QC Lot #	Analyte	Sample Result	Duplicate Result	Detection Limit	Units	RPD	RPD Limit	Diff	Diff Limit	Qual	Eval	Matrix	Class
WG2702663-2	L2019410-4	505-11	DUP	804300	Silver (Ag)-Total	<0.0010	<0.0010	0.0010	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Silver (Ag)-Total	<0.0010	<0.0010	0.0010	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Silver (Ag)-Total	<0.0010	<0.0010	0.0010	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Silver (Ag)-Total	<0.0010	<0.0010	0.0010	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Sodium (Na)-Total	2730	2710	20	mg/kg	0.8	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Sodium (Na)-Total	2680	2670	20	mg/kg	0.1	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Sodium (Na)-Total	2510	2610	20	mg/kg	4	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Sodium (Na)-Total	3220	3350	20	mg/kg	4.1	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Sodium (Na)-Total	611	606	4.0	mg/kg ww	0.8	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Sodium (Na)-Total	593	592	4.0	mg/kg ww	0.1	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Sodium (Na)-Total	516	537	4.0	mg/kg ww	4	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Sodium (Na)-Total	615	640	4.0	mg/kg ww	4.1	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Strontium (Sr)-Total	1.47	1.06	0.10	mg/kg	32	60	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Strontium (Sr)-Total	3.11	2.72	0.10	mg/kg	13	60	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Strontium (Sr)-Total	2.35	1.63	0.050	mg/kg	36	60	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Strontium (Sr)-Total	1.89	4.73	0.10	mg/kg	86	60	-		DUP-H	✗	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Strontium (Sr)-Total	0.328	0.237	0.020	mg/kg ww	32	60	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Strontium (Sr)-Total	0.688	0.602	0.020	mg/kg ww	13	60	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Strontium (Sr)-Total	0.483	0.336	0.010	mg/kg ww	36	60	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Strontium (Sr)-Total	0.361	0.904	0.020	mg/kg ww	86	60	-		DUP-H	✗	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Tellurium (Te)-Total	<0.020	<0.020	0.020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Tellurium (Te)-Total	<0.020	<0.020	0.020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Tellurium (Te)-Total	<0.020	<0.020	0.020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Tellurium (Te)-Total	<0.020	<0.020	0.020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Tellurium (Te)-Total	<0.0040	<0.0040	0.0040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Tellurium (Te)-Total	<0.0040	<0.0040	0.0040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Tellurium (Te)-Total	<0.0040	<0.0040	0.0040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Tellurium (Te)-Total	<0.0040	<0.0040	0.0040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Thallium (Tl)-Total	0.0180	0.0182	0.0020	mg/kg	1.2	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Thallium (Tl)-Total	0.0116	0.0123	0.0020	mg/kg	5.5	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Thallium (Tl)-Total	0.0078	0.0072	0.0020	mg/kg	8.2	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Thallium (Tl)-Total	0.0109	0.0121	0.0020	mg/kg	10	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Thallium (Tl)-Total	0.00402	0.00407	0.00040	mg/kg ww	1.2	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Thallium (Tl)-Total	0.00257	0.00272	0.00040	mg/kg ww	5.5	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Thallium (Tl)-Total	0.00161	0.00148	0.00040	mg/kg ww	8.2	40	-			✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Duplicates L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

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Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

ALS ID	Reference	Client Sample ID	QC Type	QC Lot #	Analyte	Sample Result	Duplicate Result	Detection Limit	Units	RPD	RPD Limit	Diff	Diff Limit	Qual	Eval	Matrix	Class
WG2704117-6	L2019410-30	508-10	DUP	805445	Thallium (Tl)-Total	0.00207	0.00230	0.00040	mg/kg ww	10	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Tin (Sn)-Total	0.11	<0.10	0.10	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Tin (Sn)-Total	0.23	<0.10	0.10	mg/kg	N/A	40	-		DUP-H	✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Tin (Sn)-Total	<0.10	<0.10	0.10	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Tin (Sn)-Total	0.12	0.14	0.10	mg/kg	14	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Tin (Sn)-Total	0.025	0.022	0.020	mg/kg ww	15	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Tin (Sn)-Total	0.050	<0.020	0.020	mg/kg ww	N/A	40	-		DUP-H	✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Tin (Sn)-Total	<0.020	<0.020	0.020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Tin (Sn)-Total	0.023	0.026	0.020	mg/kg ww	14	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Uranium (U)-Total	<0.0020	<0.0020	0.0020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Uranium (U)-Total	<0.0020	<0.0020	0.0020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Uranium (U)-Total	<0.0020	<0.0020	0.0020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Uranium (U)-Total	<0.0020	<0.0020	0.0020	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Uranium (U)-Total	<0.00040	<0.00040	0.00040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Uranium (U)-Total	<0.00040	<0.00040	0.00040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Uranium (U)-Total	<0.00040	<0.00040	0.00040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Uranium (U)-Total	<0.00040	<0.00040	0.00040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Vanadium (V)-Total	<0.10	<0.10	0.10	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Vanadium (V)-Total	<0.10	<0.10	0.10	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Vanadium (V)-Total	<0.10	<0.10	0.10	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Vanadium (V)-Total	<0.10	<0.10	0.10	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Vanadium (V)-Total	<0.020	<0.020	0.020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Vanadium (V)-Total	<0.020	<0.020	0.020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Vanadium (V)-Total	<0.020	<0.020	0.020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Vanadium (V)-Total	<0.020	<0.020	0.020	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Zinc (Zn)-Total	26.9	23.8	1.0	mg/kg	12	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Zinc (Zn)-Total	28.6	29.1	1.0	mg/kg	1.9	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Zinc (Zn)-Total	21.9	20.9	0.50	mg/kg	4.8	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Zinc (Zn)-Total	27.1	33.1	1.0	mg/kg	20	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Zinc (Zn)-Total	6.00	5.31	0.20	mg/kg ww	12	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Zinc (Zn)-Total	6.34	6.46	0.20	mg/kg ww	1.9	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Zinc (Zn)-Total	4.51	4.30	0.10	mg/kg ww	4.8	40	-			✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Zinc (Zn)-Total	5.18	6.33	0.20	mg/kg ww	20	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Zirconium (Zr)-Total	<0.20	<0.20	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Zirconium (Zr)-Total	<0.20	<0.20	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Duplicates L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

DUP-H Duplicate results outside ALS DQO, due to sample heterogeneity.

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

ALS ID	Reference	Client Sample ID	QC Type	QC Lot #	Analyte	Sample Result	Duplicate Result	Detection Limit	Units	RPD	RPD Limit	Diff	Diff Limit	Qual	Eval	Matrix	Class
WG2704091-2	L2019410-56	512-13	DUP	805430	Zirconium (Zr)-Total	0.41	<0.20	0.20	mg/kg	N/A	40	-		DUP-H	✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Zirconium (Zr)-Total	<0.20	<0.20	0.20	mg/kg	N/A	40	-			✓	Tissue	Metals
WG2702663-2	L2019410-4	505-11	DUP	804300	Zirconium (Zr)-Total	<0.040	<0.040	0.040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2703646-2	L2019410-9	501-11	DUP	805064	Zirconium (Zr)-Total	<0.040	<0.040	0.040	mg/kg ww	N/A	40	-			✓	Tissue	Metals
WG2704091-2	L2019410-56	512-13	DUP	805430	Zirconium (Zr)-Total	0.085	<0.040	0.040	mg/kg ww	N/A	40	-		DUP-H	✓	Tissue	Metals
WG2704117-6	L2019410-30	508-10	DUP	805445	Zirconium (Zr)-Total	<0.040	<0.040	0.040	mg/kg ww	N/A	40	-			✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
Metals (Tissue)													
CRM	Aluminum (Al)-Total	804300	WG2702663-3	1090	1280	mg/kg	85.5	70-130	%		✓	Tissue	Metals
CRM	Aluminum (Al)-Total	805064	WG2703646-3	1100	1280	mg/kg	85.7	70-130	%		✓	Tissue	Metals
CRM	Aluminum (Al)-Total	805430	WG2704091-3	1290	1280	mg/kg	100.9	70-130	%		✓	Tissue	Metals
CRM	Aluminum (Al)-Total	805445	WG2704117-7	1140	1280	mg/kg	89.3	70-130	%		✓	Tissue	Metals
CRM	Aluminum (Al)-Total	805430	WG2704091-3	1290	1280	mg/kg wwt	100.9	70-130	%		✓	Tissue	Metals
CRM	Arsenic (As)-Total	804300	WG2702663-3	6.79	4.4	mg/kg	154.4	70-130	%	MES	✗	Tissue	Metals
CRM	Arsenic (As)-Total	805064	WG2703646-3	6.08	4.4	mg/kg	138.1	70-130	%	MES	✗	Tissue	Metals
CRM	Arsenic (As)-Total	805430	WG2704091-3	6.63	6.87	mg/kg	96.5	70-130	%		✓	Tissue	Metals
CRM	Arsenic (As)-Total	805445	WG2704117-7	6.03	4.4	mg/kg	137.0	70-130	%	MES	✗	Tissue	Metals
CRM	Arsenic (As)-Total	805430	WG2704091-3	6.63	6.87	mg/kg wwt	96.5	70-130	%		✓	Tissue	Metals
CRM	Barium (Ba)-Total	804300	WG2702663-3	5.51	4.4	mg/kg	125.2	70-130	%		✓	Tissue	Metals
CRM	Barium (Ba)-Total	805064	WG2703646-3	4.92	4.4	mg/kg	111.8	70-130	%		✓	Tissue	Metals
CRM	Barium (Ba)-Total	805430	WG2704091-3	4.66	4.4	mg/kg	105.9	70-130	%		✓	Tissue	Metals
CRM	Barium (Ba)-Total	805445	WG2704117-7	4.50	4.4	mg/kg	102.3	70-130	%		✓	Tissue	Metals
CRM	Barium (Ba)-Total	805430	WG2704091-3	4.66	4.4	mg/kg wwt	105.9	70-130	%		✓	Tissue	Metals
CRM	Beryllium (Be)-Total	804300	WG2702663-3	0.017	0.015	mg/kg	0.017	.005-.025	mg/kg		✓	Tissue	Metals
CRM	Beryllium (Be)-Total	805064	WG2703646-3	0.016	0.015	mg/kg	0.016	.005-.025	mg/kg		✓	Tissue	Metals
CRM	Beryllium (Be)-Total	805430	WG2704091-3	0.017	0.015	mg/kg	0.017	.005-.025	mg/kg		✓	Tissue	Metals
CRM	Beryllium (Be)-Total	805445	WG2704117-7	0.017	0.015	mg/kg	0.017	.005-.025	mg/kg		✓	Tissue	Metals
CRM	Beryllium (Be)-Total	805430	WG2704091-3	0.0167	0.015	mg/kg wwt	0.0167	.005-.025	mg/kg wwt		✓	Tissue	Metals
CRM	Bismuth (Bi)-Total	804300	WG2702663-3	0.013	0.012	mg/kg	0.013	.002-.022	mg/kg		✓	Tissue	Metals
CRM	Bismuth (Bi)-Total	805064	WG2703646-3	0.011	0.012	mg/kg	0.011	.002-.022	mg/kg		✓	Tissue	Metals
CRM	Bismuth (Bi)-Total	805430	WG2704091-3	0.013	0.012	mg/kg	0.013	.002-.022	mg/kg		✓	Tissue	Metals
CRM	Bismuth (Bi)-Total	805445	WG2704117-7	<0.010	0.012	mg/kg	0.008	.002-.022	mg/kg		✓	Tissue	Metals
CRM	Bismuth (Bi)-Total	805430	WG2704091-3	0.0126	0.012	mg/kg wwt	0.0126	.002-.022	mg/kg wwt		✓	Tissue	Metals
CRM	Boron (B)-Total	804300	WG2702663-3	11.5	9.24	mg/kg	124.4	70-130	%		✓	Tissue	Metals
CRM	Boron (B)-Total	805064	WG2703646-3	10.4	9.24	mg/kg	112.3	70-130	%		✓	Tissue	Metals
CRM	Boron (B)-Total	805430	WG2704091-3	9.2	9.24	mg/kg	99.2	70-130	%		✓	Tissue	Metals
CRM	Boron (B)-Total	805445	WG2704117-7	11.2	9.24	mg/kg	120.8	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
CRM	Boron (B)-Total	805430	WG2704091-3	9.17	9.24	mg/kg ww	99.2	70-130	%		✓	Tissue	Metals
CRM	Cadmium (Cd)-Total	804300	WG2702663-3	0.331	0.299	mg/kg	110.6	70-130	%		✓	Tissue	Metals
CRM	Cadmium (Cd)-Total	805064	WG2703646-3	0.320	0.299	mg/kg	107.0	70-130	%		✓	Tissue	Metals
CRM	Cadmium (Cd)-Total	805430	WG2704091-3	0.302	0.299	mg/kg	101.0	70-130	%		✓	Tissue	Metals
CRM	Cadmium (Cd)-Total	805445	WG2704117-7	0.301	0.299	mg/kg	100.7	70-130	%		✓	Tissue	Metals
CRM	Cadmium (Cd)-Total	805430	WG2704091-3	0.302	0.299	mg/kg ww	101.0	70-130	%		✓	Tissue	Metals
CRM	Calcium (Ca)-Total	804300	WG2702663-3	2770	2360	mg/kg	117.5	70-130	%		✓	Tissue	Metals
CRM	Calcium (Ca)-Total	805064	WG2703646-3	2000	2360	mg/kg	84.8	70-130	%		✓	Tissue	Metals
CRM	Calcium (Ca)-Total	805430	WG2704091-3	2420	2360	mg/kg	102.7	70-130	%		✓	Tissue	Metals
CRM	Calcium (Ca)-Total	805445	WG2704117-7	2300	2360	mg/kg	97.6	70-130	%		✓	Tissue	Metals
CRM	Calcium (Ca)-Total	805430	WG2704091-3	2420	2360	mg/kg ww	102.7	70-130	%		✓	Tissue	Metals
CRM	Cesium (Cs)-Total	805430	WG2704091-3	0.0813	0.078	mg/kg	104.2	70-130	%		✓	Tissue	Metals
CRM	Cesium (Cs)-Total	805430	WG2704091-3	0.0813	0.078	mg/kg ww	104.2	70-130	%		✓	Tissue	Metals
CRM	Chromium (Cr)-Total	804300	WG2702663-3	1.62	1.58	mg/kg	102.4	70-130	%		✓	Tissue	Metals
CRM	Chromium (Cr)-Total	805064	WG2703646-3	1.41	1.58	mg/kg	89.0	70-130	%		✓	Tissue	Metals
CRM	Chromium (Cr)-Total	805430	WG2704091-3	1.53	1.58	mg/kg	96.9	70-130	%		✓	Tissue	Metals
CRM	Chromium (Cr)-Total	805445	WG2704117-7	1.42	1.58	mg/kg	90.0	70-130	%		✓	Tissue	Metals
CRM	Chromium (Cr)-Total	805430	WG2704091-3	1.53	1.58	mg/kg ww	96.9	70-130	%		✓	Tissue	Metals
CRM	Cobalt (Co)-Total	804300	WG2702663-3	0.222	0.25	mg/kg	89.0	70-130	%		✓	Tissue	Metals
CRM	Cobalt (Co)-Total	805064	WG2703646-3	0.202	0.25	mg/kg	80.8	70-130	%		✓	Tissue	Metals
CRM	Cobalt (Co)-Total	805430	WG2704091-3	0.255	0.25	mg/kg	102.0	70-130	%		✓	Tissue	Metals
CRM	Cobalt (Co)-Total	805445	WG2704117-7	0.253	0.25	mg/kg	101.4	70-130	%		✓	Tissue	Metals
CRM	Cobalt (Co)-Total	805430	WG2704091-3	0.255	0.25	mg/kg ww	102.0	70-130	%		✓	Tissue	Metals
CRM	Copper (Cu)-Total	804300	WG2702663-3	16.7	15.7	mg/kg	106.5	70-130	%		✓	Tissue	Metals
CRM	Copper (Cu)-Total	805064	WG2703646-3	14.9	15.7	mg/kg	95.0	70-130	%		✓	Tissue	Metals
CRM	Copper (Cu)-Total	805430	WG2704091-3	15.4	15.7	mg/kg	98.0	70-130	%		✓	Tissue	Metals
CRM	Copper (Cu)-Total	805445	WG2704117-7	15.8	15.7	mg/kg	100.7	70-130	%		✓	Tissue	Metals
CRM	Copper (Cu)-Total	805430	WG2704091-3	15.4	15.7	mg/kg ww	98.0	70-130	%		✓	Tissue	Metals
CRM	Iron (Fe)-Total	804300	WG2702663-3	298	318	mg/kg	93.6	70-130	%		✓	Tissue	Metals
CRM	Iron (Fe)-Total	805064	WG2703646-3	245	318	mg/kg	77.1	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
CRM	Iron (Fe)-Total	805430	WG2704091-3	324	318	mg/kg	102.0	70-130	%		✓	Tissue	Metals
CRM	Iron (Fe)-Total	805445	WG2704117-7	341	318	mg/kg	107.1	70-130	%		✓	Tissue	Metals
CRM	Iron (Fe)-Total	805430	WG2704091-3	324	318	mg/kg wwt	102.0	70-130	%		✓	Tissue	Metals
CRM	Lead (Pb)-Total	804300	WG2702663-3	0.300	0.231	mg/kg	129.8	70-130	%		✓	Tissue	Metals
CRM	Lead (Pb)-Total	805064	WG2703646-3	0.254	0.231	mg/kg	109.9	70-130	%		✓	Tissue	Metals
CRM	Lead (Pb)-Total	805430	WG2704091-3	0.303	0.231	mg/kg	131.2	70-130	%	MES	✗	Tissue	Metals
CRM	Lead (Pb)-Total	805445	WG2704117-7	0.230	0.231	mg/kg	99.4	70-130	%		✓	Tissue	Metals
CRM	Lead (Pb)-Total	805430	WG2704091-3	0.303	0.231	mg/kg wwt	131.2	70-130	%	MES	✗	Tissue	Metals
CRM	Lithium (Li)-Total	804300	WG2702663-3	1.32	1.21	mg/kg	1.32	.71-1.71	mg/kg		✓	Tissue	Metals
CRM	Lithium (Li)-Total	805064	WG2703646-3	1.36	1.21	mg/kg	1.36	.71-1.71	mg/kg		✓	Tissue	Metals
CRM	Lithium (Li)-Total	805430	WG2704091-3	1.10	1.21	mg/kg	1.10	.71-1.71	mg/kg		✓	Tissue	Metals
CRM	Lithium (Li)-Total	805445	WG2704117-7	1.33	1.21	mg/kg	1.33	.71-1.71	mg/kg		✓	Tissue	Metals
CRM	Lithium (Li)-Total	805430	WG2704091-3	1.10	1.21	mg/kg wwt	1.10	.71-1.71	mg/kg wwt		✓	Tissue	Metals
CRM	Magnesium (Mg)-Total	804300	WG2702663-3	823	910	mg/kg	90.4	70-130	%		✓	Tissue	Metals
CRM	Magnesium (Mg)-Total	805064	WG2703646-3	770	910	mg/kg	84.6	70-130	%		✓	Tissue	Metals
CRM	Magnesium (Mg)-Total	805430	WG2704091-3	906	910	mg/kg	99.5	70-130	%		✓	Tissue	Metals
CRM	Magnesium (Mg)-Total	805445	WG2704117-7	905	910	mg/kg	99.5	70-130	%		✓	Tissue	Metals
CRM	Magnesium (Mg)-Total	805430	WG2704091-3	906	910	mg/kg wwt	99.5	70-130	%		✓	Tissue	Metals
CRM	Manganese (Mn)-Total	804300	WG2702663-3	3.35	3.17	mg/kg	105.6	70-130	%		✓	Tissue	Metals
CRM	Manganese (Mn)-Total	805064	WG2703646-3	2.98	3.17	mg/kg	93.9	70-130	%		✓	Tissue	Metals
CRM	Manganese (Mn)-Total	805430	WG2704091-3	2.84	3.17	mg/kg	89.6	70-130	%		✓	Tissue	Metals
CRM	Manganese (Mn)-Total	805445	WG2704117-7	3.36	3.17	mg/kg	105.9	70-130	%		✓	Tissue	Metals
CRM	Manganese (Mn)-Total	805430	WG2704091-3	2.84	3.17	mg/kg wwt	89.6	70-130	%		✓	Tissue	Metals
CRM	Mercury (Hg)-Total	804300	WG2702663-3	0.386	0.322	mg/kg	119.8	70-130	%		✓	Tissue	Metals
CRM	Mercury (Hg)-Total	805064	WG2703646-3	0.313	0.322	mg/kg	97.3	70-130	%		✓	Tissue	Metals
CRM	Mercury (Hg)-Total	805430	WG2704091-3	0.344	0.322	mg/kg	106.9	70-130	%		✓	Tissue	Metals
CRM	Mercury (Hg)-Total	805445	WG2704117-7	0.327	0.322	mg/kg	101.4	70-130	%		✓	Tissue	Metals
CRM	Mercury (Hg)-Total	804300	WG2702663-3	0.386	0.322	mg/kg wwt	119.8	70-130	%		✓	Tissue	Metals
CRM	Mercury (Hg)-Total	805064	WG2703646-3	0.313	0.322	mg/kg wwt	97.3	70-130	%		✓	Tissue	Metals
CRM	Mercury (Hg)-Total	805430	WG2704091-3	0.344	0.322	mg/kg wwt	106.9	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
CRM	Mercury (Hg)-Total	805445	WG2704117-7	0.327	0.322	mg/kg ww	101.4	70-130	%		✓	Tissue	Metals
CRM	Molybdenum (Mo)-Total	804300	WG2702663-3	0.296	0.29	mg/kg	101.9	70-130	%		✓	Tissue	Metals
CRM	Molybdenum (Mo)-Total	805064	WG2703646-3	0.286	0.29	mg/kg	98.5	70-130	%		✓	Tissue	Metals
CRM	Molybdenum (Mo)-Total	805430	WG2704091-3	0.295	0.29	mg/kg	101.8	70-130	%		✓	Tissue	Metals
CRM	Molybdenum (Mo)-Total	805445	WG2704117-7	0.273	0.29	mg/kg	94.3	70-130	%		✓	Tissue	Metals
CRM	Molybdenum (Mo)-Total	805430	WG2704091-3	0.295	0.29	mg/kg ww	101.8	70-130	%		✓	Tissue	Metals
CRM	Nickel (Ni)-Total	804300	WG2702663-3	1.22	1.34	mg/kg	90.7	70-130	%		✓	Tissue	Metals
CRM	Nickel (Ni)-Total	805064	WG2703646-3	1.20	1.34	mg/kg	89.3	70-130	%		✓	Tissue	Metals
CRM	Nickel (Ni)-Total	805430	WG2704091-3	1.28	1.34	mg/kg	95.2	70-130	%		✓	Tissue	Metals
CRM	Nickel (Ni)-Total	805445	WG2704117-7	1.16	1.34	mg/kg	86.5	70-130	%		✓	Tissue	Metals
CRM	Nickel (Ni)-Total	805430	WG2704091-3	1.28	1.34	mg/kg ww	95.2	70-130	%		✓	Tissue	Metals
CRM	Phosphorus (P)-Total	804300	WG2702663-3	7020	8000	mg/kg	87.7	70-130	%		✓	Tissue	Metals
CRM	Phosphorus (P)-Total	805064	WG2703646-3	6560	8000	mg/kg	82.0	70-130	%		✓	Tissue	Metals
CRM	Phosphorus (P)-Total	805430	WG2704091-3	7670	8000	mg/kg	95.9	70-130	%		✓	Tissue	Metals
CRM	Phosphorus (P)-Total	805445	WG2704117-7	7540	8000	mg/kg	94.2	70-130	%		✓	Tissue	Metals
CRM	Phosphorus (P)-Total	805430	WG2704091-3	7670	8000	mg/kg ww	95.9	70-130	%		✓	Tissue	Metals
CRM	Potassium (K)-Total	804300	WG2702663-3	13200	12800	mg/kg	102.8	70-130	%		✓	Tissue	Metals
CRM	Potassium (K)-Total	805064	WG2703646-3	11900	12800	mg/kg	92.9	70-130	%		✓	Tissue	Metals
CRM	Potassium (K)-Total	805430	WG2704091-3	12800	12800	mg/kg	100.0	70-130	%		✓	Tissue	Metals
CRM	Potassium (K)-Total	805445	WG2704117-7	12700	12800	mg/kg	98.8	70-130	%		✓	Tissue	Metals
CRM	Potassium (K)-Total	805430	WG2704091-3	12800	12800	mg/kg ww	100.0	70-130	%		✓	Tissue	Metals
CRM	Rubidium (Rb)-Total	804300	WG2702663-3	5.90	5.59	mg/kg	105.6	70-130	%		✓	Tissue	Metals
CRM	Rubidium (Rb)-Total	805064	WG2703646-3	5.51	5.59	mg/kg	98.6	70-130	%		✓	Tissue	Metals
CRM	Rubidium (Rb)-Total	805430	WG2704091-3	5.87	5.59	mg/kg	104.9	70-130	%		✓	Tissue	Metals
CRM	Rubidium (Rb)-Total	805445	WG2704117-7	5.43	5.59	mg/kg	97.2	70-130	%		✓	Tissue	Metals
CRM	Rubidium (Rb)-Total	805430	WG2704091-3	5.87	5.59	mg/kg ww	104.9	70-130	%		✓	Tissue	Metals
CRM	Selenium (Se)-Total	804300	WG2702663-3	3.79	3.45	mg/kg	109.7	70-130	%		✓	Tissue	Metals
CRM	Selenium (Se)-Total	805064	WG2703646-3	3.12	3.45	mg/kg	90.3	70-130	%		✓	Tissue	Metals
CRM	Selenium (Se)-Total	805430	WG2704091-3	3.64	3.45	mg/kg	105.4	70-130	%		✓	Tissue	Metals
CRM	Selenium (Se)-Total	805445	WG2704117-7	3.13	3.45	mg/kg	90.6	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
CRM	Selenium (Se)-Total	805430	WG2704091-3	3.64	3.45	mg/kg ww	105.4	70-130	%		✓	Tissue	Metals
CRM	Silver (Ag)-Total	805430	WG2704091-3	0.0272	0.0252	mg/kg	107.9	70-130	%		✓	Tissue	Metals
CRM	Silver (Ag)-Total	804300	WG2702663-3	0.0282	0.0252	mg/kg ww	111.8	70-130	%		✓	Tissue	Metals
CRM	Silver (Ag)-Total	805064	WG2703646-3	0.0271	0.0252	mg/kg ww	107.7	70-130	%		✓	Tissue	Metals
CRM	Silver (Ag)-Total	805430	WG2704091-3	0.0272	0.0252	mg/kg ww	107.9	70-130	%		✓	Tissue	Metals
CRM	Silver (Ag)-Total	805445	WG2704117-7	0.0268	0.0252	mg/kg ww	106.5	70-130	%		✓	Tissue	Metals
CRM	Sodium (Na)-Total	804300	WG2702663-3	14500	14000	mg/kg	103.3	70-130	%		✓	Tissue	Metals
CRM	Sodium (Na)-Total	805064	WG2703646-3	12200	14000	mg/kg	86.8	70-130	%		✓	Tissue	Metals
CRM	Sodium (Na)-Total	805430	WG2704091-3	13800	14000	mg/kg	98.5	70-130	%		✓	Tissue	Metals
CRM	Sodium (Na)-Total	805445	WG2704117-7	13800	14000	mg/kg	98.4	70-130	%		✓	Tissue	Metals
CRM	Sodium (Na)-Total	805430	WG2704091-3	13800	14000	mg/kg ww	98.5	70-130	%		✓	Tissue	Metals
CRM	Strontium (Sr)-Total	804300	WG2702663-3	11.3	10.1	mg/kg	111.7	70-130	%		✓	Tissue	Metals
CRM	Strontium (Sr)-Total	805064	WG2703646-3	8.50	10.1	mg/kg	84.2	70-130	%		✓	Tissue	Metals
CRM	Strontium (Sr)-Total	805430	WG2704091-3	9.83	10.1	mg/kg	97.4	70-130	%		✓	Tissue	Metals
CRM	Strontium (Sr)-Total	805445	WG2704117-7	9.49	10.1	mg/kg	94.0	70-130	%		✓	Tissue	Metals
CRM	Strontium (Sr)-Total	805430	WG2704091-3	9.83	10.1	mg/kg ww	97.4	70-130	%		✓	Tissue	Metals
CRM	Thallium (Tl)-Total	804300	WG2702663-3	0.0113	0.009	mg/kg	125.3	70-130	%		✓	Tissue	Metals
CRM	Thallium (Tl)-Total	805064	WG2703646-3	0.0109	0.009	mg/kg	120.7	70-130	%		✓	Tissue	Metals
CRM	Thallium (Tl)-Total	805430	WG2704091-3	0.0111	0.009	mg/kg	123.5	70-130	%		✓	Tissue	Metals
CRM	Thallium (Tl)-Total	805445	WG2704117-7	0.0093	0.009	mg/kg	103.0	70-130	%		✓	Tissue	Metals
CRM	Thallium (Tl)-Total	805430	WG2704091-3	0.0111	0.009	mg/kg ww	123.5	70-130	%		✓	Tissue	Metals
CRM	Uranium (U)-Total	804300	WG2702663-3	0.0507	0.0481	mg/kg	105.4	70-130	%		✓	Tissue	Metals
CRM	Uranium (U)-Total	805064	WG2703646-3	0.0466	0.0481	mg/kg	96.8	70-130	%		✓	Tissue	Metals
CRM	Uranium (U)-Total	805430	WG2704091-3	0.0560	0.0481	mg/kg	116.4	70-130	%		✓	Tissue	Metals
CRM	Uranium (U)-Total	805445	WG2704117-7	0.0485	0.0481	mg/kg	100.8	70-130	%		✓	Tissue	Metals
CRM	Uranium (U)-Total	805430	WG2704091-3	0.0560	0.0481	mg/kg ww	116.4	70-130	%		✓	Tissue	Metals
CRM	Vanadium (V)-Total	804300	WG2702663-3	1.35	1.48	mg/kg	91.5	70-130	%		✓	Tissue	Metals
CRM	Vanadium (V)-Total	805064	WG2703646-3	1.24	1.48	mg/kg	83.7	70-130	%		✓	Tissue	Metals
CRM	Vanadium (V)-Total	805430	WG2704091-3	1.45	1.48	mg/kg	98.2	70-130	%		✓	Tissue	Metals
CRM	Vanadium (V)-Total	805445	WG2704117-7	1.40	1.48	mg/kg	94.3	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
CRM	Vanadium (V)-Total	805430	WG2704091-3	1.45	1.48	mg/kg ww	98.2	70-130	%		✓	Tissue	Metals
CRM	Zinc (Zn)-Total	804300	WG2702663-3	48.7	46.2	mg/kg	105.3	70-130	%		✓	Tissue	Metals
CRM	Zinc (Zn)-Total	805064	WG2703646-3	40.8	46.2	mg/kg	88.2	70-130	%		✓	Tissue	Metals
CRM	Zinc (Zn)-Total	805430	WG2704091-3	47.0	46.2	mg/kg	101.6	70-130	%		✓	Tissue	Metals
CRM	Zinc (Zn)-Total	805445	WG2704117-7	48.1	46.2	mg/kg	104.2	70-130	%		✓	Tissue	Metals
CRM	Zinc (Zn)-Total	805430	WG2704091-3	47.0	46.2	mg/kg ww	101.6	70-130	%		✓	Tissue	Metals
CRM	Zirconium (Zr)-Total	804300	WG2702663-3	0.31	0.254	mg/kg	0.31	.05-.45	mg/kg		✓	Tissue	Metals
CRM	Zirconium (Zr)-Total	805064	WG2703646-3	0.23	0.254	mg/kg	0.23	.05-.45	mg/kg		✓	Tissue	Metals
CRM	Zirconium (Zr)-Total	805430	WG2704091-3	0.48	0.254	mg/kg	0.48	.05-.45	mg/kg	MES	✗	Tissue	Metals
CRM	Zirconium (Zr)-Total	805445	WG2704117-7	0.25	0.254	mg/kg	0.25	.05-.45	mg/kg		✓	Tissue	Metals
CRM	Zirconium (Zr)-Total	805430	WG2704091-3	0.475	0.254	mg/kg ww	0.475	.054-.454	mg/kg ww	MES	✗	Tissue	Metals
Physical Tests (Tissue)													
LCS	% Moisture	804318	WG2702677-2	100	100	%	100.1	90-110	%		✓	Tissue	Physical Tests
LCS	% Moisture	805082	WG2703661-2	100	100	%	100.1	90-110	%		✓	Tissue	Physical Tests
LCS	% Moisture	805438	WG2704113-2	50.3	50	%	100.5	90-110	%		✓	Tissue	Physical Tests
LCS	% Moisture	805446	WG2704125-2	100	100	%	100.2	90-110	%		✓	Tissue	Physical Tests
Metals (Tissue)													
LCS	Aluminum (Al)-Total	804300	WG2702663-4	93.1	100	mg/kg	93.1	70-130	%		✓	Tissue	Metals
LCS	Aluminum (Al)-Total	805064	WG2703646-4	104	100	mg/kg	103.9	70-130	%		✓	Tissue	Metals
LCS	Aluminum (Al)-Total	805430	WG2704091-4	98.7	100	mg/kg	98.7	70-130	%		✓	Tissue	Metals
LCS	Aluminum (Al)-Total	805445	WG2704117-8	86.2	100	mg/kg	86.2	70-130	%		✓	Tissue	Metals
LCS	Aluminum (Al)-Total	804300	WG2702663-4	18.6	20	mg/kg ww	93.1	70-130	%		✓	Tissue	Metals
LCS	Aluminum (Al)-Total	805064	WG2703646-4	20.8	20	mg/kg ww	103.9	70-130	%		✓	Tissue	Metals
LCS	Aluminum (Al)-Total	805430	WG2704091-4	19.7	20	mg/kg ww	98.7	70-130	%		✓	Tissue	Metals
LCS	Aluminum (Al)-Total	805445	WG2704117-8	17.2	20	mg/kg ww	86.2	70-130	%		✓	Tissue	Metals
LCS	Antimony (Sb)-Total	804300	WG2702663-4	39.3	50	mg/kg	78.6	70-130	%		✓	Tissue	Metals
LCS	Antimony (Sb)-Total	805064	WG2703646-4	43.2	50	mg/kg	86.4	70-130	%		✓	Tissue	Metals
LCS	Antimony (Sb)-Total	805430	WG2704091-4	54.4	50	mg/kg	108.9	70-130	%		✓	Tissue	Metals
LCS	Antimony (Sb)-Total	805445	WG2704117-8	41.1	50	mg/kg	82.1	70-130	%		✓	Tissue	Metals
LCS	Antimony (Sb)-Total	804300	WG2702663-4	7.86	10	mg/kg ww	78.6	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
LCS	Antimony (Sb)-Total	805064	WG2703646-4	8.64	10	mg/kg ww	86.4	70-130	%		✓	Tissue	Metals
LCS	Antimony (Sb)-Total	805430	WG2704091-4	10.9	10	mg/kg ww	108.9	70-130	%		✓	Tissue	Metals
LCS	Antimony (Sb)-Total	805445	WG2704117-8	8.21	10	mg/kg ww	82.1	70-130	%		✓	Tissue	Metals
LCS	Arsenic (As)-Total	804300	WG2702663-4	44.0	50	mg/kg	88.0	70-130	%		✓	Tissue	Metals
LCS	Arsenic (As)-Total	805064	WG2703646-4	56.6	50	mg/kg	113.1	70-130	%		✓	Tissue	Metals
LCS	Arsenic (As)-Total	805430	WG2704091-4	49.0	50	mg/kg	98.1	70-130	%		✓	Tissue	Metals
LCS	Arsenic (As)-Total	805445	WG2704117-8	48.7	50	mg/kg	97.4	70-130	%		✓	Tissue	Metals
LCS	Arsenic (As)-Total	804300	WG2702663-4	8.80	10	mg/kg ww	88.0	70-130	%		✓	Tissue	Metals
LCS	Arsenic (As)-Total	805064	WG2703646-4	11.3	10	mg/kg ww	113.1	70-130	%		✓	Tissue	Metals
LCS	Arsenic (As)-Total	805430	WG2704091-4	9.81	10	mg/kg ww	98.1	70-130	%		✓	Tissue	Metals
LCS	Arsenic (As)-Total	805445	WG2704117-8	9.74	10	mg/kg ww	97.4	70-130	%		✓	Tissue	Metals
LCS	Barium (Ba)-Total	804300	WG2702663-4	13.0	12.5	mg/kg	104.0	70-130	%		✓	Tissue	Metals
LCS	Barium (Ba)-Total	805064	WG2703646-4	12.9	12.5	mg/kg	103.5	70-130	%		✓	Tissue	Metals
LCS	Barium (Ba)-Total	805430	WG2704091-4	12.6	12.5	mg/kg	100.7	70-130	%		✓	Tissue	Metals
LCS	Barium (Ba)-Total	805445	WG2704117-8	12.3	12.5	mg/kg	98.4	70-130	%		✓	Tissue	Metals
LCS	Barium (Ba)-Total	804300	WG2702663-4	2.60	2.5	mg/kg ww	104.0	70-130	%		✓	Tissue	Metals
LCS	Barium (Ba)-Total	805064	WG2703646-4	2.59	2.5	mg/kg ww	103.5	70-130	%		✓	Tissue	Metals
LCS	Barium (Ba)-Total	805430	WG2704091-4	2.52	2.5	mg/kg ww	100.7	70-130	%		✓	Tissue	Metals
LCS	Barium (Ba)-Total	805445	WG2704117-8	2.46	2.5	mg/kg ww	98.4	70-130	%		✓	Tissue	Metals
LCS	Beryllium (Be)-Total	804300	WG2702663-4	5.55	5	mg/kg	111.0	70-130	%		✓	Tissue	Metals
LCS	Beryllium (Be)-Total	805064	WG2703646-4	5.91	5	mg/kg	118.3	70-130	%		✓	Tissue	Metals
LCS	Beryllium (Be)-Total	805430	WG2704091-4	5.09	5	mg/kg	101.8	70-130	%		✓	Tissue	Metals
LCS	Beryllium (Be)-Total	805445	WG2704117-8	4.51	5	mg/kg	90.1	70-130	%		✓	Tissue	Metals
LCS	Beryllium (Be)-Total	804300	WG2702663-4	1.11	1	mg/kg ww	111.0	70-130	%		✓	Tissue	Metals
LCS	Beryllium (Be)-Total	805064	WG2703646-4	1.18	1	mg/kg ww	118.3	70-130	%		✓	Tissue	Metals
LCS	Beryllium (Be)-Total	805430	WG2704091-4	1.02	1	mg/kg ww	101.8	70-130	%		✓	Tissue	Metals
LCS	Beryllium (Be)-Total	805445	WG2704117-8	0.901	1	mg/kg ww	90.1	70-130	%		✓	Tissue	Metals
LCS	Bismuth (Bi)-Total	804300	WG2702663-4	48.8	50	mg/kg	97.6	70-130	%		✓	Tissue	Metals
LCS	Bismuth (Bi)-Total	805064	WG2703646-4	51.2	50	mg/kg	102.3	70-130	%		✓	Tissue	Metals
LCS	Bismuth (Bi)-Total	805430	WG2704091-4	51.9	50	mg/kg	103.9	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

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Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
LCS	Bismuth (Bi)-Total	805445	WG2704117-8	50.8	50	mg/kg	101.7	70-130	%		✓	Tissue	Metals
LCS	Bismuth (Bi)-Total	804300	WG2702663-4	9.76	10	mg/kg wwt	97.6	70-130	%		✓	Tissue	Metals
LCS	Bismuth (Bi)-Total	805064	WG2703646-4	10.2	10	mg/kg wwt	102.3	70-130	%		✓	Tissue	Metals
LCS	Bismuth (Bi)-Total	805430	WG2704091-4	10.4	10	mg/kg wwt	103.9	70-130	%		✓	Tissue	Metals
LCS	Bismuth (Bi)-Total	805445	WG2704117-8	10.2	10	mg/kg wwt	101.7	70-130	%		✓	Tissue	Metals
LCS	Boron (B)-Total	804300	WG2702663-4	44.4	50	mg/kg	88.9	70-130	%		✓	Tissue	Metals
LCS	Boron (B)-Total	805064	WG2703646-4	49.5	50	mg/kg	99.0	70-130	%		✓	Tissue	Metals
LCS	Boron (B)-Total	805430	WG2704091-4	47.8	50	mg/kg	95.5	70-130	%		✓	Tissue	Metals
LCS	Boron (B)-Total	805445	WG2704117-8	43.6	50	mg/kg	87.2	70-130	%		✓	Tissue	Metals
LCS	Boron (B)-Total	804300	WG2702663-4	8.89	10	mg/kg wwt	88.9	70-130	%		✓	Tissue	Metals
LCS	Boron (B)-Total	805064	WG2703646-4	9.90	10	mg/kg wwt	99.0	70-130	%		✓	Tissue	Metals
LCS	Boron (B)-Total	805430	WG2704091-4	9.55	10	mg/kg wwt	95.5	70-130	%		✓	Tissue	Metals
LCS	Boron (B)-Total	805445	WG2704117-8	8.72	10	mg/kg wwt	87.2	70-130	%		✓	Tissue	Metals
LCS	Cadmium (Cd)-Total	804300	WG2702663-4	5.47	5	mg/kg	109.4	70-130	%		✓	Tissue	Metals
LCS	Cadmium (Cd)-Total	805064	WG2703646-4	5.59	5	mg/kg	111.9	70-130	%		✓	Tissue	Metals
LCS	Cadmium (Cd)-Total	805430	WG2704091-4	4.96	5	mg/kg	99.2	70-130	%		✓	Tissue	Metals
LCS	Cadmium (Cd)-Total	805445	WG2704117-8	4.84	5	mg/kg	96.9	70-130	%		✓	Tissue	Metals
LCS	Cadmium (Cd)-Total	804300	WG2702663-4	1.09	1	mg/kg wwt	109.4	70-130	%		✓	Tissue	Metals
LCS	Cadmium (Cd)-Total	805064	WG2703646-4	1.12	1	mg/kg wwt	111.9	70-130	%		✓	Tissue	Metals
LCS	Cadmium (Cd)-Total	805430	WG2704091-4	0.992	1	mg/kg wwt	99.2	70-130	%		✓	Tissue	Metals
LCS	Cadmium (Cd)-Total	805445	WG2704117-8	0.969	1	mg/kg wwt	96.9	70-130	%		✓	Tissue	Metals
LCS	Calcium (Ca)-Total	804300	WG2702663-4	2670	2500	mg/kg	106.9	70-130	%		✓	Tissue	Metals
LCS	Calcium (Ca)-Total	805064	WG2703646-4	2640	2500	mg/kg	105.4	70-130	%		✓	Tissue	Metals
LCS	Calcium (Ca)-Total	805430	WG2704091-4	2550	2500	mg/kg	102.1	70-130	%		✓	Tissue	Metals
LCS	Calcium (Ca)-Total	805445	WG2704117-8	2440	2500	mg/kg	97.6	70-130	%		✓	Tissue	Metals
LCS	Calcium (Ca)-Total	804300	WG2702663-4	534	500	mg/kg wwt	106.9	70-130	%		✓	Tissue	Metals
LCS	Calcium (Ca)-Total	805064	WG2703646-4	527	500	mg/kg wwt	105.4	70-130	%		✓	Tissue	Metals
LCS	Calcium (Ca)-Total	805430	WG2704091-4	511	500	mg/kg wwt	102.1	70-130	%		✓	Tissue	Metals
LCS	Calcium (Ca)-Total	805445	WG2704117-8	488	500	mg/kg wwt	97.6	70-130	%		✓	Tissue	Metals
LCS	Cesium (Cs)-Total	804300	WG2702663-4	2.21	2.5	mg/kg	88.4	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
LCS	Cesium (Cs)-Total	805064	WG2703646-4	2.29	2.5	mg/kg	91.6	70-130	%		✓	Tissue	Metals
LCS	Cesium (Cs)-Total	805430	WG2704091-4	2.60	2.5	mg/kg	104.2	70-130	%		✓	Tissue	Metals
LCS	Cesium (Cs)-Total	805445	WG2704117-8	2.37	2.5	mg/kg	94.6	70-130	%		✓	Tissue	Metals
LCS	Cesium (Cs)-Total	804300	WG2702663-4	0.442	0.5	mg/kg ww	88.4	70-130	%		✓	Tissue	Metals
LCS	Cesium (Cs)-Total	805064	WG2703646-4	0.458	0.5	mg/kg ww	91.6	70-130	%		✓	Tissue	Metals
LCS	Cesium (Cs)-Total	805430	WG2704091-4	0.521	0.5	mg/kg ww	104.2	70-130	%		✓	Tissue	Metals
LCS	Cesium (Cs)-Total	805445	WG2704117-8	0.473	0.5	mg/kg ww	94.6	70-130	%		✓	Tissue	Metals
LCS	Chromium (Cr)-Total	804300	WG2702663-4	12.6	12.5	mg/kg	100.8	70-130	%		✓	Tissue	Metals
LCS	Chromium (Cr)-Total	805064	WG2703646-4	12.9	12.5	mg/kg	102.8	70-130	%		✓	Tissue	Metals
LCS	Chromium (Cr)-Total	805430	WG2704091-4	11.9	12.5	mg/kg	95.5	70-130	%		✓	Tissue	Metals
LCS	Chromium (Cr)-Total	805445	WG2704117-8	11.8	12.5	mg/kg	94.4	70-130	%		✓	Tissue	Metals
LCS	Chromium (Cr)-Total	804300	WG2702663-4	2.52	2.5	mg/kg ww	100.8	70-130	%		✓	Tissue	Metals
LCS	Chromium (Cr)-Total	805064	WG2703646-4	2.57	2.5	mg/kg ww	102.8	70-130	%		✓	Tissue	Metals
LCS	Chromium (Cr)-Total	805430	WG2704091-4	2.39	2.5	mg/kg ww	95.5	70-130	%		✓	Tissue	Metals
LCS	Chromium (Cr)-Total	805445	WG2704117-8	2.36	2.5	mg/kg ww	94.4	70-130	%		✓	Tissue	Metals
LCS	Cobalt (Co)-Total	804300	WG2702663-4	13.2	12.5	mg/kg	105.6	70-130	%		✓	Tissue	Metals
LCS	Cobalt (Co)-Total	805064	WG2703646-4	11.4	12.5	mg/kg	91.2	70-130	%		✓	Tissue	Metals
LCS	Cobalt (Co)-Total	805430	WG2704091-4	12.2	12.5	mg/kg	97.4	70-130	%		✓	Tissue	Metals
LCS	Cobalt (Co)-Total	805445	WG2704117-8	13.2	12.5	mg/kg	105.6	70-130	%		✓	Tissue	Metals
LCS	Cobalt (Co)-Total	804300	WG2702663-4	2.64	2.5	mg/kg ww	105.6	70-130	%		✓	Tissue	Metals
LCS	Cobalt (Co)-Total	805064	WG2703646-4	2.28	2.5	mg/kg ww	91.2	70-130	%		✓	Tissue	Metals
LCS	Cobalt (Co)-Total	805430	WG2704091-4	2.44	2.5	mg/kg ww	97.4	70-130	%		✓	Tissue	Metals
LCS	Cobalt (Co)-Total	805445	WG2704117-8	2.64	2.5	mg/kg ww	105.6	70-130	%		✓	Tissue	Metals
LCS	Copper (Cu)-Total	804300	WG2702663-4	13.3	12.5	mg/kg	106.1	70-130	%		✓	Tissue	Metals
LCS	Copper (Cu)-Total	805064	WG2703646-4	12.7	12.5	mg/kg	101.6	70-130	%		✓	Tissue	Metals
LCS	Copper (Cu)-Total	805430	WG2704091-4	12.1	12.5	mg/kg	96.5	70-130	%		✓	Tissue	Metals
LCS	Copper (Cu)-Total	805445	WG2704117-8	12.2	12.5	mg/kg	97.4	70-130	%		✓	Tissue	Metals
LCS	Copper (Cu)-Total	804300	WG2702663-4	2.65	2.5	mg/kg ww	106.1	70-130	%		✓	Tissue	Metals
LCS	Copper (Cu)-Total	805064	WG2703646-4	2.54	2.5	mg/kg ww	101.6	70-130	%		✓	Tissue	Metals
LCS	Copper (Cu)-Total	805430	WG2704091-4	2.41	2.5	mg/kg ww	96.5	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
LCS	Copper (Cu)-Total	805445	WG2704117-8	2.43	2.5	mg/kg ww	97.4	70-130	%		✓	Tissue	Metals
LCS	Iron (Fe)-Total	804300	WG2702663-4	51.7	50	mg/kg	103.3	70-130	%		✓	Tissue	Metals
LCS	Iron (Fe)-Total	805064	WG2703646-4	51.9	50	mg/kg	103.8	70-130	%		✓	Tissue	Metals
LCS	Iron (Fe)-Total	805430	WG2704091-4	49.4	50	mg/kg	98.8	70-130	%		✓	Tissue	Metals
LCS	Iron (Fe)-Total	805445	WG2704117-8	49.2	50	mg/kg	98.4	70-130	%		✓	Tissue	Metals
LCS	Iron (Fe)-Total	804300	WG2702663-4	10.3	10	mg/kg ww	103.3	70-130	%		✓	Tissue	Metals
LCS	Iron (Fe)-Total	805064	WG2703646-4	10.4	10	mg/kg ww	103.8	70-130	%		✓	Tissue	Metals
LCS	Iron (Fe)-Total	805430	WG2704091-4	9.88	10	mg/kg ww	98.8	70-130	%		✓	Tissue	Metals
LCS	Iron (Fe)-Total	805445	WG2704117-8	9.84	10	mg/kg ww	98.4	70-130	%		✓	Tissue	Metals
LCS	Lead (Pb)-Total	804300	WG2702663-4	22.0	25	mg/kg	87.8	70-130	%		✓	Tissue	Metals
LCS	Lead (Pb)-Total	805064	WG2703646-4	25.0	25	mg/kg	100.2	70-130	%		✓	Tissue	Metals
LCS	Lead (Pb)-Total	805430	WG2704091-4	26.2	25	mg/kg	104.8	70-130	%		✓	Tissue	Metals
LCS	Lead (Pb)-Total	805445	WG2704117-8	24.2	25	mg/kg	96.8	70-130	%		✓	Tissue	Metals
LCS	Lead (Pb)-Total	804300	WG2702663-4	4.39	5	mg/kg ww	87.8	70-130	%		✓	Tissue	Metals
LCS	Lead (Pb)-Total	805064	WG2703646-4	5.01	5	mg/kg ww	100.2	70-130	%		✓	Tissue	Metals
LCS	Lead (Pb)-Total	805430	WG2704091-4	5.24	5	mg/kg ww	104.8	70-130	%		✓	Tissue	Metals
LCS	Lead (Pb)-Total	805445	WG2704117-8	4.84	5	mg/kg ww	96.8	70-130	%		✓	Tissue	Metals
LCS	Lithium (Li)-Total	804300	WG2702663-4	12.0	12.5	mg/kg	96.2	70-130	%		✓	Tissue	Metals
LCS	Lithium (Li)-Total	805064	WG2703646-4	14.4	12.5	mg/kg	115.0	70-130	%		✓	Tissue	Metals
LCS	Lithium (Li)-Total	805430	WG2704091-4	12.7	12.5	mg/kg	101.8	70-130	%		✓	Tissue	Metals
LCS	Lithium (Li)-Total	805445	WG2704117-8	12.2	12.5	mg/kg	97.6	70-130	%		✓	Tissue	Metals
LCS	Lithium (Li)-Total	804300	WG2702663-4	2.40	2.5	mg/kg ww	96.2	70-130	%		✓	Tissue	Metals
LCS	Lithium (Li)-Total	805064	WG2703646-4	2.88	2.5	mg/kg ww	115.0	70-130	%		✓	Tissue	Metals
LCS	Lithium (Li)-Total	805430	WG2704091-4	2.55	2.5	mg/kg ww	101.8	70-130	%		✓	Tissue	Metals
LCS	Lithium (Li)-Total	805445	WG2704117-8	2.44	2.5	mg/kg ww	97.6	70-130	%		✓	Tissue	Metals
LCS	Magnesium (Mg)-Total	804300	WG2702663-4	2470	2500	mg/kg	98.7	70-130	%		✓	Tissue	Metals
LCS	Magnesium (Mg)-Total	805064	WG2703646-4	2500	2500	mg/kg	99.9	70-130	%		✓	Tissue	Metals
LCS	Magnesium (Mg)-Total	805430	WG2704091-4	2350	2500	mg/kg	94.1	70-130	%		✓	Tissue	Metals
LCS	Magnesium (Mg)-Total	805445	WG2704117-8	2420	2500	mg/kg	96.9	70-130	%		✓	Tissue	Metals
LCS	Magnesium (Mg)-Total	804300	WG2702663-4	494	500	mg/kg ww	98.7	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
LCS	Magnesium (Mg)-Total	805064	WG2703646-4	499	500	mg/kg ww	99.9	70-130	%		✓	Tissue	Metals
LCS	Magnesium (Mg)-Total	805430	WG2704091-4	471	500	mg/kg ww	94.1	70-130	%		✓	Tissue	Metals
LCS	Magnesium (Mg)-Total	805445	WG2704117-8	485	500	mg/kg ww	96.9	70-130	%		✓	Tissue	Metals
LCS	Manganese (Mn)-Total	804300	WG2702663-4	14.6	12.5	mg/kg	116.5	70-130	%		✓	Tissue	Metals
LCS	Manganese (Mn)-Total	805064	WG2703646-4	13.6	12.5	mg/kg	108.4	70-130	%		✓	Tissue	Metals
LCS	Manganese (Mn)-Total	805430	WG2704091-4	12.3	12.5	mg/kg	98.3	70-130	%		✓	Tissue	Metals
LCS	Manganese (Mn)-Total	805445	WG2704117-8	13.7	12.5	mg/kg	109.6	70-130	%		✓	Tissue	Metals
LCS	Manganese (Mn)-Total	804300	WG2702663-4	2.91	2.5	mg/kg ww	116.5	70-130	%		✓	Tissue	Metals
LCS	Manganese (Mn)-Total	805064	WG2703646-4	2.71	2.5	mg/kg ww	108.4	70-130	%		✓	Tissue	Metals
LCS	Manganese (Mn)-Total	805430	WG2704091-4	2.46	2.5	mg/kg ww	98.3	70-130	%		✓	Tissue	Metals
LCS	Manganese (Mn)-Total	805445	WG2704117-8	2.74	2.5	mg/kg ww	109.6	70-130	%		✓	Tissue	Metals
LCS	Mercury (Hg)-Total	804300	WG2702663-4	0.107	0.1	mg/kg	107.2	70-130	%		✓	Tissue	Metals
LCS	Mercury (Hg)-Total	805064	WG2703646-4	0.0970	0.1	mg/kg	97.0	70-130	%		✓	Tissue	Metals
LCS	Mercury (Hg)-Total	805430	WG2704091-4	0.103	0.1	mg/kg	103.4	70-130	%		✓	Tissue	Metals
LCS	Mercury (Hg)-Total	805445	WG2704117-8	0.101	0.1	mg/kg	101.1	70-130	%		✓	Tissue	Metals
LCS	Mercury (Hg)-Total	804300	WG2702663-4	0.0214	0.02	mg/kg ww	107.2	70-130	%		✓	Tissue	Metals
LCS	Mercury (Hg)-Total	805064	WG2703646-4	0.0194	0.02	mg/kg ww	97.0	70-130	%		✓	Tissue	Metals
LCS	Mercury (Hg)-Total	805430	WG2704091-4	0.0207	0.02	mg/kg ww	103.4	70-130	%		✓	Tissue	Metals
LCS	Mercury (Hg)-Total	805445	WG2704117-8	0.0202	0.02	mg/kg ww	101.1	70-130	%		✓	Tissue	Metals
LCS	Molybdenum (Mo)-Total	804300	WG2702663-4	10.8	12.5	mg/kg	86.1	70-130	%		✓	Tissue	Metals
LCS	Molybdenum (Mo)-Total	805064	WG2703646-4	11.3	12.5	mg/kg	90.1	70-130	%		✓	Tissue	Metals
LCS	Molybdenum (Mo)-Total	805430	WG2704091-4	13.4	12.5	mg/kg	106.9	70-130	%		✓	Tissue	Metals
LCS	Molybdenum (Mo)-Total	805445	WG2704117-8	10.1	12.5	mg/kg	80.4	70-130	%		✓	Tissue	Metals
LCS	Molybdenum (Mo)-Total	804300	WG2702663-4	2.15	2.5	mg/kg ww	86.1	70-130	%		✓	Tissue	Metals
LCS	Molybdenum (Mo)-Total	805064	WG2703646-4	2.25	2.5	mg/kg ww	90.1	70-130	%		✓	Tissue	Metals
LCS	Molybdenum (Mo)-Total	805430	WG2704091-4	2.67	2.5	mg/kg ww	106.9	70-130	%		✓	Tissue	Metals
LCS	Molybdenum (Mo)-Total	805445	WG2704117-8	2.01	2.5	mg/kg ww	80.4	70-130	%		✓	Tissue	Metals
LCS	Nickel (Ni)-Total	804300	WG2702663-4	28.3	25	mg/kg	113.0	70-130	%		✓	Tissue	Metals
LCS	Nickel (Ni)-Total	805064	WG2703646-4	26.9	25	mg/kg	107.7	70-130	%		✓	Tissue	Metals
LCS	Nickel (Ni)-Total	805430	WG2704091-4	24.1	25	mg/kg	96.3	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
LCS	Nickel (Ni)-Total	805445	WG2704117-8	25.7	25	mg/kg	102.8	70-130	%		✓	Tissue	Metals
LCS	Nickel (Ni)-Total	804300	WG2702663-4	5.65	5	mg/kg wwt	113.0	70-130	%		✓	Tissue	Metals
LCS	Nickel (Ni)-Total	805064	WG2703646-4	5.38	5	mg/kg wwt	107.7	70-130	%		✓	Tissue	Metals
LCS	Nickel (Ni)-Total	805430	WG2704091-4	4.81	5	mg/kg wwt	96.3	70-130	%		✓	Tissue	Metals
LCS	Nickel (Ni)-Total	805445	WG2704117-8	5.14	5	mg/kg wwt	102.8	70-130	%		✓	Tissue	Metals
LCS	Potassium (K)-Total	804300	WG2702663-4	2440	2500	mg/kg	97.7	70-130	%		✓	Tissue	Metals
LCS	Potassium (K)-Total	805064	WG2703646-4	2690	2500	mg/kg	107.7	70-130	%		✓	Tissue	Metals
LCS	Potassium (K)-Total	805430	WG2704091-4	2420	2500	mg/kg	96.9	70-130	%		✓	Tissue	Metals
LCS	Potassium (K)-Total	805445	WG2704117-8	2500	2500	mg/kg	100.1	70-130	%		✓	Tissue	Metals
LCS	Potassium (K)-Total	804300	WG2702663-4	489	500	mg/kg wwt	97.7	70-130	%		✓	Tissue	Metals
LCS	Potassium (K)-Total	805064	WG2703646-4	539	500	mg/kg wwt	107.7	70-130	%		✓	Tissue	Metals
LCS	Potassium (K)-Total	805430	WG2704091-4	484	500	mg/kg wwt	96.9	70-130	%		✓	Tissue	Metals
LCS	Potassium (K)-Total	805445	WG2704117-8	501	500	mg/kg wwt	100.1	70-130	%		✓	Tissue	Metals
LCS	Rubidium (Rb)-Total	804300	WG2702663-4	4.57	5	mg/kg	91.3	70-130	%		✓	Tissue	Metals
LCS	Rubidium (Rb)-Total	805064	WG2703646-4	4.77	5	mg/kg	95.3	70-130	%		✓	Tissue	Metals
LCS	Rubidium (Rb)-Total	805430	WG2704091-4	5.23	5	mg/kg	104.5	70-130	%		✓	Tissue	Metals
LCS	Rubidium (Rb)-Total	805445	WG2704117-8	4.39	5	mg/kg	87.8	70-130	%		✓	Tissue	Metals
LCS	Rubidium (Rb)-Total	804300	WG2702663-4	0.913	1	mg/kg wwt	91.3	70-130	%		✓	Tissue	Metals
LCS	Rubidium (Rb)-Total	805064	WG2703646-4	0.953	1	mg/kg wwt	95.3	70-130	%		✓	Tissue	Metals
LCS	Rubidium (Rb)-Total	805430	WG2704091-4	1.05	1	mg/kg wwt	104.5	70-130	%		✓	Tissue	Metals
LCS	Rubidium (Rb)-Total	805445	WG2704117-8	0.878	1	mg/kg wwt	87.8	70-130	%		✓	Tissue	Metals
LCS	Selenium (Se)-Total	804300	WG2702663-4	49.1	50	mg/kg	98.2	70-130	%		✓	Tissue	Metals
LCS	Selenium (Se)-Total	805064	WG2703646-4	50.9	50	mg/kg	101.7	70-130	%		✓	Tissue	Metals
LCS	Selenium (Se)-Total	805430	WG2704091-4	51.3	50	mg/kg	102.5	70-130	%		✓	Tissue	Metals
LCS	Selenium (Se)-Total	805445	WG2704117-8	42.8	50	mg/kg	85.6	70-130	%		✓	Tissue	Metals
LCS	Selenium (Se)-Total	804300	WG2702663-4	9.82	10	mg/kg wwt	98.2	70-130	%		✓	Tissue	Metals
LCS	Selenium (Se)-Total	805064	WG2703646-4	10.2	10	mg/kg wwt	101.7	70-130	%		✓	Tissue	Metals
LCS	Selenium (Se)-Total	805430	WG2704091-4	10.3	10	mg/kg wwt	102.5	70-130	%		✓	Tissue	Metals
LCS	Selenium (Se)-Total	805445	WG2704117-8	8.56	10	mg/kg wwt	85.6	70-130	%		✓	Tissue	Metals
LCS	Silver (Ag)-Total	804300	WG2702663-4	4.00	5	mg/kg	80.1	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
LCS	Silver (Ag)-Total	805064	WG2703646-4	4.12	5	mg/kg	82.4	70-130	%		✓	Tissue	Metals
LCS	Silver (Ag)-Total	805430	WG2704091-4	4.91	5	mg/kg	98.2	70-130	%		✓	Tissue	Metals
LCS	Silver (Ag)-Total	805445	WG2704117-8	4.15	5	mg/kg	83.1	70-130	%		✓	Tissue	Metals
LCS	Silver (Ag)-Total	804300	WG2702663-4	0.801	1	mg/kg ww	80.1	70-130	%		✓	Tissue	Metals
LCS	Silver (Ag)-Total	805064	WG2703646-4	0.824	1	mg/kg ww	82.4	70-130	%		✓	Tissue	Metals
LCS	Silver (Ag)-Total	805430	WG2704091-4	0.982	1	mg/kg ww	98.2	70-130	%		✓	Tissue	Metals
LCS	Silver (Ag)-Total	805445	WG2704117-8	0.831	1	mg/kg ww	83.1	70-130	%		✓	Tissue	Metals
LCS	Sodium (Na)-Total	804300	WG2702663-4	2410	2500	mg/kg	96.3	70-130	%		✓	Tissue	Metals
LCS	Sodium (Na)-Total	805064	WG2703646-4	2520	2500	mg/kg	101.0	70-130	%		✓	Tissue	Metals
LCS	Sodium (Na)-Total	805430	WG2704091-4	2440	2500	mg/kg	97.7	70-130	%		✓	Tissue	Metals
LCS	Sodium (Na)-Total	805445	WG2704117-8	2400	2500	mg/kg	95.9	70-130	%		✓	Tissue	Metals
LCS	Sodium (Na)-Total	804300	WG2702663-4	482	500	mg/kg ww	96.3	70-130	%		✓	Tissue	Metals
LCS	Sodium (Na)-Total	805064	WG2703646-4	505	500	mg/kg ww	101.0	70-130	%		✓	Tissue	Metals
LCS	Sodium (Na)-Total	805430	WG2704091-4	488	500	mg/kg ww	97.7	70-130	%		✓	Tissue	Metals
LCS	Sodium (Na)-Total	805445	WG2704117-8	480	500	mg/kg ww	95.9	70-130	%		✓	Tissue	Metals
LCS	Strontium (Sr)-Total	804300	WG2702663-4	12.4	12.5	mg/kg	99.2	70-130	%		✓	Tissue	Metals
LCS	Strontium (Sr)-Total	805064	WG2703646-4	11.4	12.5	mg/kg	91.6	70-130	%		✓	Tissue	Metals
LCS	Strontium (Sr)-Total	805430	WG2704091-4	13.0	12.5	mg/kg	104.0	70-130	%		✓	Tissue	Metals
LCS	Strontium (Sr)-Total	805445	WG2704117-8	11.8	12.5	mg/kg	94.1	70-130	%		✓	Tissue	Metals
LCS	Strontium (Sr)-Total	804300	WG2702663-4	2.48	2.5	mg/kg ww	99.2	70-130	%		✓	Tissue	Metals
LCS	Strontium (Sr)-Total	805064	WG2703646-4	2.29	2.5	mg/kg ww	91.6	70-130	%		✓	Tissue	Metals
LCS	Strontium (Sr)-Total	805430	WG2704091-4	2.60	2.5	mg/kg ww	104.0	70-130	%		✓	Tissue	Metals
LCS	Strontium (Sr)-Total	805445	WG2704117-8	2.35	2.5	mg/kg ww	94.1	70-130	%		✓	Tissue	Metals
LCS	Tellurium (Te)-Total	804300	WG2702663-4	4.73	5	mg/kg	94.6	70-130	%		✓	Tissue	Metals
LCS	Tellurium (Te)-Total	805064	WG2703646-4	5.58	5	mg/kg	111.6	70-130	%		✓	Tissue	Metals
LCS	Tellurium (Te)-Total	805430	WG2704091-4	5.41	5	mg/kg	108.3	70-130	%		✓	Tissue	Metals
LCS	Tellurium (Te)-Total	805445	WG2704117-8	4.80	5	mg/kg	96.0	70-130	%		✓	Tissue	Metals
LCS	Tellurium (Te)-Total	804300	WG2702663-4	0.946	1	mg/kg ww	94.6	70-130	%		✓	Tissue	Metals
LCS	Tellurium (Te)-Total	805064	WG2703646-4	1.12	1	mg/kg ww	111.6	70-130	%		✓	Tissue	Metals
LCS	Tellurium (Te)-Total	805430	WG2704091-4	1.08	1	mg/kg ww	108.3	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

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Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
LCS	Tellurium (Te)-Total	805445	WG2704117-8	0.960	1	mg/kg ww	96.0	70-130	%		✓	Tissue	Metals
LCS	Thallium (Tl)-Total	804300	WG2702663-4	45.3	50	mg/kg	90.5	70-130	%		✓	Tissue	Metals
LCS	Thallium (Tl)-Total	805064	WG2703646-4	48.6	50	mg/kg	97.2	70-130	%		✓	Tissue	Metals
LCS	Thallium (Tl)-Total	805430	WG2704091-4	48.9	50	mg/kg	97.8	70-130	%		✓	Tissue	Metals
LCS	Thallium (Tl)-Total	805445	WG2704117-8	44.4	50	mg/kg	88.8	70-130	%		✓	Tissue	Metals
LCS	Thallium (Tl)-Total	804300	WG2702663-4	9.05	10	mg/kg ww	90.5	70-130	%		✓	Tissue	Metals
LCS	Thallium (Tl)-Total	805064	WG2703646-4	9.72	10	mg/kg ww	97.2	70-130	%		✓	Tissue	Metals
LCS	Thallium (Tl)-Total	805430	WG2704091-4	9.78	10	mg/kg ww	97.8	70-130	%		✓	Tissue	Metals
LCS	Thallium (Tl)-Total	805445	WG2704117-8	8.88	10	mg/kg ww	88.8	70-130	%		✓	Tissue	Metals
LCS	Tin (Sn)-Total	804300	WG2702663-4	20.1	25	mg/kg	80.3	70-130	%		✓	Tissue	Metals
LCS	Tin (Sn)-Total	805064	WG2703646-4	23.4	25	mg/kg	93.6	70-130	%		✓	Tissue	Metals
LCS	Tin (Sn)-Total	805430	WG2704091-4	24.4	25	mg/kg	97.7	70-130	%		✓	Tissue	Metals
LCS	Tin (Sn)-Total	805445	WG2704117-8	20.4	25	mg/kg	81.5	70-130	%		✓	Tissue	Metals
LCS	Tin (Sn)-Total	804300	WG2702663-4	4.02	5	mg/kg ww	80.3	70-130	%		✓	Tissue	Metals
LCS	Tin (Sn)-Total	805064	WG2703646-4	4.68	5	mg/kg ww	93.6	70-130	%		✓	Tissue	Metals
LCS	Tin (Sn)-Total	805430	WG2704091-4	4.89	5	mg/kg ww	97.7	70-130	%		✓	Tissue	Metals
LCS	Tin (Sn)-Total	805445	WG2704117-8	4.07	5	mg/kg ww	81.5	70-130	%		✓	Tissue	Metals
LCS	Uranium (U)-Total	804300	WG2702663-4	0.293	0.25	mg/kg	117.0	70-130	%		✓	Tissue	Metals
LCS	Uranium (U)-Total	805064	WG2703646-4	0.293	0.25	mg/kg	117.0	70-130	%		✓	Tissue	Metals
LCS	Uranium (U)-Total	805430	WG2704091-4	0.273	0.25	mg/kg	109.2	70-130	%		✓	Tissue	Metals
LCS	Uranium (U)-Total	805445	WG2704117-8	0.280	0.25	mg/kg	111.9	70-130	%		✓	Tissue	Metals
LCS	Uranium (U)-Total	804300	WG2702663-4	0.0585	0.05	mg/kg ww	117.0	70-130	%		✓	Tissue	Metals
LCS	Uranium (U)-Total	805064	WG2703646-4	0.0585	0.05	mg/kg ww	117.0	70-130	%		✓	Tissue	Metals
LCS	Uranium (U)-Total	805430	WG2704091-4	0.0546	0.05	mg/kg ww	109.2	70-130	%		✓	Tissue	Metals
LCS	Uranium (U)-Total	805445	WG2704117-8	0.0559	0.05	mg/kg ww	111.9	70-130	%		✓	Tissue	Metals
LCS	Vanadium (V)-Total	804300	WG2702663-4	23.8	25	mg/kg	95.2	70-130	%		✓	Tissue	Metals
LCS	Vanadium (V)-Total	805064	WG2703646-4	24.3	25	mg/kg	97.2	70-130	%		✓	Tissue	Metals
LCS	Vanadium (V)-Total	805430	WG2704091-4	24.6	25	mg/kg	98.2	70-130	%		✓	Tissue	Metals
LCS	Vanadium (V)-Total	805445	WG2704117-8	25.1	25	mg/kg	100.4	70-130	%		✓	Tissue	Metals
LCS	Vanadium (V)-Total	804300	WG2702663-4	4.76	5	mg/kg ww	95.2	70-130	%		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
LCS	Vanadium (V)-Total	805064	WG2703646-4	4.86	5	mg/kg ww	97.2	70-130	%		✓	Tissue	Metals
LCS	Vanadium (V)-Total	805430	WG2704091-4	4.91	5	mg/kg ww	98.2	70-130	%		✓	Tissue	Metals
LCS	Vanadium (V)-Total	805445	WG2704117-8	5.02	5	mg/kg ww	100.4	70-130	%		✓	Tissue	Metals
LCS	Zinc (Zn)-Total	804300	WG2702663-4	23.9	25	mg/kg	95.7	70-130	%		✓	Tissue	Metals
LCS	Zinc (Zn)-Total	805064	WG2703646-4	24.1	25	mg/kg	96.5	70-130	%		✓	Tissue	Metals
LCS	Zinc (Zn)-Total	805430	WG2704091-4	23.8	25	mg/kg	95.1	70-130	%		✓	Tissue	Metals
LCS	Zinc (Zn)-Total	805445	WG2704117-8	21.8	25	mg/kg	87.1	70-130	%		✓	Tissue	Metals
LCS	Zinc (Zn)-Total	804300	WG2702663-4	4.79	5	mg/kg ww	95.7	70-130	%		✓	Tissue	Metals
LCS	Zinc (Zn)-Total	805064	WG2703646-4	4.82	5	mg/kg ww	96.5	70-130	%		✓	Tissue	Metals
LCS	Zinc (Zn)-Total	805430	WG2704091-4	4.75	5	mg/kg ww	95.1	70-130	%		✓	Tissue	Metals
LCS	Zinc (Zn)-Total	805445	WG2704117-8	4.35	5	mg/kg ww	87.1	70-130	%		✓	Tissue	Metals
LCS	Zirconium (Zr)-Total	804300	WG2702663-4	4.80	5	mg/kg	95.9	70-130	%		✓	Tissue	Metals
LCS	Zirconium (Zr)-Total	805064	WG2703646-4	4.91	5	mg/kg	98.2	70-130	%		✓	Tissue	Metals
LCS	Zirconium (Zr)-Total	805430	WG2704091-4	4.90	5	mg/kg	98.1	70-130	%		✓	Tissue	Metals
LCS	Zirconium (Zr)-Total	805445	WG2704117-8	4.51	5	mg/kg	90.1	70-130	%		✓	Tissue	Metals
LCS	Zirconium (Zr)-Total	804300	WG2702663-4	0.959	1	mg/kg ww	95.9	70-130	%		✓	Tissue	Metals
LCS	Zirconium (Zr)-Total	805064	WG2703646-4	0.982	1	mg/kg ww	98.2	70-130	%		✓	Tissue	Metals
LCS	Zirconium (Zr)-Total	805430	WG2704091-4	0.981	1	mg/kg ww	98.1	70-130	%		✓	Tissue	Metals
LCS	Zirconium (Zr)-Total	805445	WG2704117-8	0.901	1	mg/kg ww	90.1	70-130	%		✓	Tissue	Metals
Physical Tests (Tissue)													
MB	% Moisture	804318	WG2702677-1	<2.0		%	-	<2.0	%		✓	Tissue	Physical Tests
MB	% Moisture	805082	WG2703661-1	<2.0		%	-	<2.0	%		✓	Tissue	Physical Tests
MB	% Moisture	805438	WG2704113-1	<0.50		%	-	<0.50	%		✓	Tissue	Physical Tests
MB	% Moisture	805446	WG2704125-1	<2.0		%	-	<2.0	%		✓	Tissue	Physical Tests
Metals (Tissue)													
MB	Aluminum (Al)-Total	804300	WG2702663-1	<5.0		mg/kg	-	<5.0	mg/kg		✓	Tissue	Metals
MB	Aluminum (Al)-Total	805064	WG2703646-1	<5.0		mg/kg	-	<5.0	mg/kg		✓	Tissue	Metals
MB	Aluminum (Al)-Total	805430	WG2704091-1	<2.0		mg/kg	-	<2.0	mg/kg		✓	Tissue	Metals
MB	Aluminum (Al)-Total	805445	WG2704117-5	<5.0		mg/kg	-	<5.0	mg/kg		✓	Tissue	Metals
MB	Aluminum (Al)-Total	804300	WG2702663-1	<1.0		mg/kg ww	-	<1.0	mg/kg ww		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

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Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Aluminum (Al)-Total	805064	WG2703646-1	<1.0		mg/kg ww	-	<1.0	mg/kg ww		✓	Tissue	Metals
MB	Aluminum (Al)-Total	805430	WG2704091-1	<0.40		mg/kg ww	-	<0.40	mg/kg ww		✓	Tissue	Metals
MB	Aluminum (Al)-Total	805445	WG2704117-5	<1.0		mg/kg ww	-	<1.0	mg/kg ww		✓	Tissue	Metals
MB	Antimony (Sb)-Total	804300	WG2702663-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Antimony (Sb)-Total	805064	WG2703646-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Antimony (Sb)-Total	805430	WG2704091-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Antimony (Sb)-Total	805445	WG2704117-5	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Antimony (Sb)-Total	804300	WG2702663-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Antimony (Sb)-Total	805064	WG2703646-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Antimony (Sb)-Total	805430	WG2704091-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Antimony (Sb)-Total	805445	WG2704117-5	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Arsenic (As)-Total	804300	WG2702663-1	<0.030		mg/kg	-	<0.030	mg/kg		✓	Tissue	Metals
MB	Arsenic (As)-Total	805064	WG2703646-1	<0.030		mg/kg	-	<0.030	mg/kg		✓	Tissue	Metals
MB	Arsenic (As)-Total	805430	WG2704091-1	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Arsenic (As)-Total	805445	WG2704117-5	<0.030		mg/kg	-	<0.030	mg/kg		✓	Tissue	Metals
MB	Arsenic (As)-Total	804300	WG2702663-1	<0.0060		mg/kg ww	-	<0.0060	mg/kg ww		✓	Tissue	Metals
MB	Arsenic (As)-Total	805064	WG2703646-1	<0.0060		mg/kg ww	-	<0.0060	mg/kg ww		✓	Tissue	Metals
MB	Arsenic (As)-Total	805430	WG2704091-1	<0.0040		mg/kg ww	-	<0.0040	mg/kg ww		✓	Tissue	Metals
MB	Arsenic (As)-Total	805445	WG2704117-5	<0.0060		mg/kg ww	-	<0.0060	mg/kg ww		✓	Tissue	Metals
MB	Barium (Ba)-Total	804300	WG2702663-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Barium (Ba)-Total	805064	WG2703646-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Barium (Ba)-Total	805430	WG2704091-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Barium (Ba)-Total	805445	WG2704117-5	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Barium (Ba)-Total	804300	WG2702663-1	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Barium (Ba)-Total	805064	WG2703646-1	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Barium (Ba)-Total	805430	WG2704091-1	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Barium (Ba)-Total	805445	WG2704117-5	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Beryllium (Be)-Total	804300	WG2702663-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Beryllium (Be)-Total	805064	WG2703646-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Beryllium (Be)-Total	805430	WG2704091-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

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Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Beryllium (Be)-Total	805445	WG2704117-5	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Beryllium (Be)-Total	804300	WG2702663-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Beryllium (Be)-Total	805064	WG2703646-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Beryllium (Be)-Total	805430	WG2704091-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Beryllium (Be)-Total	805445	WG2704117-5	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Bismuth (Bi)-Total	804300	WG2702663-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Bismuth (Bi)-Total	805064	WG2703646-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Bismuth (Bi)-Total	805430	WG2704091-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Bismuth (Bi)-Total	805445	WG2704117-5	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Bismuth (Bi)-Total	804300	WG2702663-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Bismuth (Bi)-Total	805064	WG2703646-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Bismuth (Bi)-Total	805430	WG2704091-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Bismuth (Bi)-Total	805445	WG2704117-5	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Boron (B)-Total	804300	WG2702663-1	<1.0		mg/kg	-	<1.0	mg/kg		✓	Tissue	Metals
MB	Boron (B)-Total	805064	WG2703646-1	<1.0		mg/kg	-	<1.0	mg/kg		✓	Tissue	Metals
MB	Boron (B)-Total	805430	WG2704091-1	<1.0		mg/kg	-	<1.0	mg/kg		✓	Tissue	Metals
MB	Boron (B)-Total	805445	WG2704117-5	<1.0		mg/kg	-	<1.0	mg/kg		✓	Tissue	Metals
MB	Boron (B)-Total	804300	WG2702663-1	<0.20		mg/kg ww	-	<0.20	mg/kg ww		✓	Tissue	Metals
MB	Boron (B)-Total	805064	WG2703646-1	<0.20		mg/kg ww	-	<0.20	mg/kg ww		✓	Tissue	Metals
MB	Boron (B)-Total	805430	WG2704091-1	<0.20		mg/kg ww	-	<0.20	mg/kg ww		✓	Tissue	Metals
MB	Boron (B)-Total	805445	WG2704117-5	<0.20		mg/kg ww	-	<0.20	mg/kg ww		✓	Tissue	Metals
MB	Cadmium (Cd)-Total	804300	WG2702663-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Cadmium (Cd)-Total	805064	WG2703646-1	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Cadmium (Cd)-Total	805430	WG2704091-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Cadmium (Cd)-Total	805445	WG2704117-5	<0.010		mg/kg	-	<0.010	mg/kg		✓	Tissue	Metals
MB	Cadmium (Cd)-Total	804300	WG2702663-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Cadmium (Cd)-Total	805064	WG2703646-1	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Cadmium (Cd)-Total	805430	WG2704091-1	<0.0010		mg/kg ww	-	<0.0010	mg/kg ww		✓	Tissue	Metals
MB	Cadmium (Cd)-Total	805445	WG2704117-5	<0.0020		mg/kg ww	-	<0.0020	mg/kg ww		✓	Tissue	Metals
MB	Calcium (Ca)-Total	804300	WG2702663-1	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Calcium (Ca)-Total	805064	WG2703646-1	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Calcium (Ca)-Total	805430	WG2704091-1	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Calcium (Ca)-Total	805445	WG2704117-5	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Calcium (Ca)-Total	804300	WG2702663-1	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Calcium (Ca)-Total	805064	WG2703646-1	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Calcium (Ca)-Total	805430	WG2704091-1	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Calcium (Ca)-Total	805445	WG2704117-5	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Cesium (Cs)-Total	804300	WG2702663-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Cesium (Cs)-Total	805064	WG2703646-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Cesium (Cs)-Total	805430	WG2704091-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Cesium (Cs)-Total	805445	WG2704117-5	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Cesium (Cs)-Total	804300	WG2702663-1	<0.0010		mg/kg ww	-	<0.0010	mg/kg ww		✓	Tissue	Metals
MB	Cesium (Cs)-Total	805064	WG2703646-1	<0.0010		mg/kg ww	-	<0.0010	mg/kg ww		✓	Tissue	Metals
MB	Cesium (Cs)-Total	805430	WG2704091-1	<0.0010		mg/kg ww	-	<0.0010	mg/kg ww		✓	Tissue	Metals
MB	Cesium (Cs)-Total	805445	WG2704117-5	<0.0010		mg/kg ww	-	<0.0010	mg/kg ww		✓	Tissue	Metals
MB	Chromium (Cr)-Total	804300	WG2702663-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Chromium (Cr)-Total	805064	WG2703646-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Chromium (Cr)-Total	805430	WG2704091-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Chromium (Cr)-Total	805445	WG2704117-5	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Chromium (Cr)-Total	804300	WG2702663-1	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Chromium (Cr)-Total	805064	WG2703646-1	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Chromium (Cr)-Total	805430	WG2704091-1	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Chromium (Cr)-Total	805445	WG2704117-5	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Cobalt (Co)-Total	804300	WG2702663-1	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Cobalt (Co)-Total	805064	WG2703646-1	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Cobalt (Co)-Total	805430	WG2704091-1	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Cobalt (Co)-Total	805445	WG2704117-5	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Cobalt (Co)-Total	804300	WG2702663-1	<0.0040		mg/kg ww	-	<0.0040	mg/kg ww		✓	Tissue	Metals
MB	Cobalt (Co)-Total	805064	WG2703646-1	<0.0040		mg/kg ww	-	<0.0040	mg/kg ww		✓	Tissue	Metals
MB	Cobalt (Co)-Total	805430	WG2704091-1	<0.0040		mg/kg ww	-	<0.0040	mg/kg ww		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Cobalt (Co)-Total	805445	WG2704117-5	<0.0040		mg/kg wwt	-	<0.0040	mg/kg wwt		✓	Tissue	Metals
MB	Copper (Cu)-Total	804300	WG2702663-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Copper (Cu)-Total	805064	WG2703646-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Copper (Cu)-Total	805430	WG2704091-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Copper (Cu)-Total	805445	WG2704117-5	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Copper (Cu)-Total	804300	WG2702663-1	<0.040		mg/kg wwt	-	<0.040	mg/kg wwt		✓	Tissue	Metals
MB	Copper (Cu)-Total	805064	WG2703646-1	<0.040		mg/kg wwt	-	<0.040	mg/kg wwt		✓	Tissue	Metals
MB	Copper (Cu)-Total	805430	WG2704091-1	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Copper (Cu)-Total	805445	WG2704117-5	<0.040		mg/kg wwt	-	<0.040	mg/kg wwt		✓	Tissue	Metals
MB	Iron (Fe)-Total	804300	WG2702663-1	<5.0		mg/kg	-	<5.0	mg/kg		✓	Tissue	Metals
MB	Iron (Fe)-Total	805064	WG2703646-1	<5.0		mg/kg	-	<5.0	mg/kg		✓	Tissue	Metals
MB	Iron (Fe)-Total	805430	WG2704091-1	<3.0		mg/kg	-	<3.0	mg/kg		✓	Tissue	Metals
MB	Iron (Fe)-Total	805445	WG2704117-5	<5.0		mg/kg	-	<5.0	mg/kg		✓	Tissue	Metals
MB	Iron (Fe)-Total	804300	WG2702663-1	<1.0		mg/kg wwt	-	<1.0	mg/kg wwt		✓	Tissue	Metals
MB	Iron (Fe)-Total	805064	WG2703646-1	<1.0		mg/kg wwt	-	<1.0	mg/kg wwt		✓	Tissue	Metals
MB	Iron (Fe)-Total	805430	WG2704091-1	<0.60		mg/kg wwt	-	<0.60	mg/kg wwt		✓	Tissue	Metals
MB	Iron (Fe)-Total	805445	WG2704117-5	<1.0		mg/kg wwt	-	<1.0	mg/kg wwt		✓	Tissue	Metals
MB	Lead (Pb)-Total	804300	WG2702663-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Lead (Pb)-Total	805064	WG2703646-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Lead (Pb)-Total	805430	WG2704091-1	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Lead (Pb)-Total	805445	WG2704117-5	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Lead (Pb)-Total	804300	WG2702663-1	<0.010		mg/kg wwt	-	<0.010	mg/kg wwt		✓	Tissue	Metals
MB	Lead (Pb)-Total	805064	WG2703646-1	<0.010		mg/kg wwt	-	<0.010	mg/kg wwt		✓	Tissue	Metals
MB	Lead (Pb)-Total	805430	WG2704091-1	<0.0040		mg/kg wwt	-	<0.0040	mg/kg wwt		✓	Tissue	Metals
MB	Lead (Pb)-Total	805445	WG2704117-5	<0.010		mg/kg wwt	-	<0.010	mg/kg wwt		✓	Tissue	Metals
MB	Lithium (Li)-Total	804300	WG2702663-1	<0.50		mg/kg	-	<0.50	mg/kg		✓	Tissue	Metals
MB	Lithium (Li)-Total	805064	WG2703646-1	<0.50		mg/kg	-	<0.50	mg/kg		✓	Tissue	Metals
MB	Lithium (Li)-Total	805430	WG2704091-1	<0.50		mg/kg	-	<0.50	mg/kg		✓	Tissue	Metals
MB	Lithium (Li)-Total	805445	WG2704117-5	<0.50		mg/kg	-	<0.50	mg/kg		✓	Tissue	Metals
MB	Lithium (Li)-Total	804300	WG2702663-1	<0.10		mg/kg wwt	-	<0.10	mg/kg wwt		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Lithium (Li)-Total	805064	WG2703646-1	<0.10		mg/kg wwt	-	<0.10	mg/kg wwt		✓	Tissue	Metals
MB	Lithium (Li)-Total	805430	WG2704091-1	<0.10		mg/kg wwt	-	<0.10	mg/kg wwt		✓	Tissue	Metals
MB	Lithium (Li)-Total	805445	WG2704117-5	<0.10		mg/kg wwt	-	<0.10	mg/kg wwt		✓	Tissue	Metals
MB	Magnesium (Mg)-Total	804300	WG2702663-1	<2.0		mg/kg	-	<2.0	mg/kg		✓	Tissue	Metals
MB	Magnesium (Mg)-Total	805064	WG2703646-1	<2.0		mg/kg	-	<2.0	mg/kg		✓	Tissue	Metals
MB	Magnesium (Mg)-Total	805430	WG2704091-1	<2.0		mg/kg	-	<2.0	mg/kg		✓	Tissue	Metals
MB	Magnesium (Mg)-Total	805445	WG2704117-5	<2.0		mg/kg	-	<2.0	mg/kg		✓	Tissue	Metals
MB	Magnesium (Mg)-Total	804300	WG2702663-1	<0.40		mg/kg wwt	-	<0.40	mg/kg wwt		✓	Tissue	Metals
MB	Magnesium (Mg)-Total	805064	WG2703646-1	<0.40		mg/kg wwt	-	<0.40	mg/kg wwt		✓	Tissue	Metals
MB	Magnesium (Mg)-Total	805430	WG2704091-1	<0.40		mg/kg wwt	-	<0.40	mg/kg wwt		✓	Tissue	Metals
MB	Magnesium (Mg)-Total	805445	WG2704117-5	<0.40		mg/kg wwt	-	<0.40	mg/kg wwt		✓	Tissue	Metals
MB	Manganese (Mn)-Total	804300	WG2702663-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Manganese (Mn)-Total	805064	WG2703646-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Manganese (Mn)-Total	805430	WG2704091-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Manganese (Mn)-Total	805445	WG2704117-5	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Manganese (Mn)-Total	804300	WG2702663-1	<0.010		mg/kg wwt	-	<0.010	mg/kg wwt		✓	Tissue	Metals
MB	Manganese (Mn)-Total	805064	WG2703646-1	<0.010		mg/kg wwt	-	<0.010	mg/kg wwt		✓	Tissue	Metals
MB	Manganese (Mn)-Total	805430	WG2704091-1	<0.010		mg/kg wwt	-	<0.010	mg/kg wwt		✓	Tissue	Metals
MB	Manganese (Mn)-Total	805445	WG2704117-5	<0.010		mg/kg wwt	-	<0.010	mg/kg wwt		✓	Tissue	Metals
MB	Mercury (Hg)-Total	804300	WG2702663-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Mercury (Hg)-Total	805064	WG2703646-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Mercury (Hg)-Total	805430	WG2704091-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Mercury (Hg)-Total	805445	WG2704117-5	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Mercury (Hg)-Total	804300	WG2702663-1	<0.0010		mg/kg wwt	-	<0.0010	mg/kg wwt		✓	Tissue	Metals
MB	Mercury (Hg)-Total	805064	WG2703646-1	<0.0010		mg/kg wwt	-	<0.0010	mg/kg wwt		✓	Tissue	Metals
MB	Mercury (Hg)-Total	805430	WG2704091-1	<0.0010		mg/kg wwt	-	<0.0010	mg/kg wwt		✓	Tissue	Metals
MB	Mercury (Hg)-Total	805445	WG2704117-5	<0.0010		mg/kg wwt	-	<0.0010	mg/kg wwt		✓	Tissue	Metals
MB	Molybdenum (Mo)-Total	804300	WG2702663-1	<0.040		mg/kg	-	<0.040	mg/kg		✓	Tissue	Metals
MB	Molybdenum (Mo)-Total	805064	WG2703646-1	<0.040		mg/kg	-	<0.040	mg/kg		✓	Tissue	Metals
MB	Molybdenum (Mo)-Total	805430	WG2704091-1	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Molybdenum (Mo)-Total	805445	WG2704117-5	<0.040		mg/kg	-	<0.040	mg/kg		✓	Tissue	Metals
MB	Molybdenum (Mo)-Total	804300	WG2702663-1	<0.0080		mg/kg ww	-	<0.0080	mg/kg ww		✓	Tissue	Metals
MB	Molybdenum (Mo)-Total	805064	WG2703646-1	<0.0080		mg/kg ww	-	<0.0080	mg/kg ww		✓	Tissue	Metals
MB	Molybdenum (Mo)-Total	805430	WG2704091-1	<0.0040		mg/kg ww	-	<0.0040	mg/kg ww		✓	Tissue	Metals
MB	Molybdenum (Mo)-Total	805445	WG2704117-5	<0.0080		mg/kg ww	-	<0.0080	mg/kg ww		✓	Tissue	Metals
MB	Nickel (Ni)-Total	804300	WG2702663-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Nickel (Ni)-Total	805064	WG2703646-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Nickel (Ni)-Total	805430	WG2704091-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Nickel (Ni)-Total	805445	WG2704117-5	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Nickel (Ni)-Total	804300	WG2702663-1	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Nickel (Ni)-Total	805064	WG2703646-1	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Nickel (Ni)-Total	805430	WG2704091-1	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Nickel (Ni)-Total	805445	WG2704117-5	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Phosphorus (P)-Total	804300	WG2702663-1	<10		mg/kg	-	<10	mg/kg		✓	Tissue	Metals
MB	Phosphorus (P)-Total	805064	WG2703646-1	<10		mg/kg	-	<10	mg/kg		✓	Tissue	Metals
MB	Phosphorus (P)-Total	805430	WG2704091-1	<10		mg/kg	-	<10	mg/kg		✓	Tissue	Metals
MB	Phosphorus (P)-Total	805445	WG2704117-5	<10		mg/kg	-	<10	mg/kg		✓	Tissue	Metals
MB	Phosphorus (P)-Total	804300	WG2702663-1	<2.0		mg/kg ww	-	<2.0	mg/kg ww		✓	Tissue	Metals
MB	Phosphorus (P)-Total	805064	WG2703646-1	<2.0		mg/kg ww	-	<2.0	mg/kg ww		✓	Tissue	Metals
MB	Phosphorus (P)-Total	805430	WG2704091-1	<2.0		mg/kg ww	-	<2.0	mg/kg ww		✓	Tissue	Metals
MB	Phosphorus (P)-Total	805445	WG2704117-5	<2.0		mg/kg ww	-	<2.0	mg/kg ww		✓	Tissue	Metals
MB	Potassium (K)-Total	804300	WG2702663-1	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Potassium (K)-Total	805064	WG2703646-1	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Potassium (K)-Total	805430	WG2704091-1	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Potassium (K)-Total	805445	WG2704117-5	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Potassium (K)-Total	804300	WG2702663-1	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Potassium (K)-Total	805064	WG2703646-1	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Potassium (K)-Total	805430	WG2704091-1	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Potassium (K)-Total	805445	WG2704117-5	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Rubidium (Rb)-Total	804300	WG2702663-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Rubidium (Rb)-Total	805064	WG2703646-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Rubidium (Rb)-Total	805430	WG2704091-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Rubidium (Rb)-Total	805445	WG2704117-5	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Rubidium (Rb)-Total	804300	WG2702663-1	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Rubidium (Rb)-Total	805064	WG2703646-1	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Rubidium (Rb)-Total	805430	WG2704091-1	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Rubidium (Rb)-Total	805445	WG2704117-5	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Selenium (Se)-Total	804300	WG2702663-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Selenium (Se)-Total	805064	WG2703646-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Selenium (Se)-Total	805430	WG2704091-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Selenium (Se)-Total	805445	WG2704117-5	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Selenium (Se)-Total	804300	WG2702663-1	<0.020		mg/kg ww	-	<0.020	mg/kg ww		✓	Tissue	Metals
MB	Selenium (Se)-Total	805064	WG2703646-1	<0.020		mg/kg ww	-	<0.020	mg/kg ww		✓	Tissue	Metals
MB	Selenium (Se)-Total	805430	WG2704091-1	<0.010		mg/kg ww	-	<0.010	mg/kg ww		✓	Tissue	Metals
MB	Selenium (Se)-Total	805445	WG2704117-5	<0.020		mg/kg ww	-	<0.020	mg/kg ww		✓	Tissue	Metals
MB	Silver (Ag)-Total	804300	WG2702663-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Silver (Ag)-Total	805064	WG2703646-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Silver (Ag)-Total	805430	WG2704091-1	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Silver (Ag)-Total	805445	WG2704117-5	<0.0050		mg/kg	-	<0.0050	mg/kg		✓	Tissue	Metals
MB	Silver (Ag)-Total	804300	WG2702663-1	<0.0010		mg/kg ww	-	<0.0010	mg/kg ww		✓	Tissue	Metals
MB	Silver (Ag)-Total	805064	WG2703646-1	<0.0010		mg/kg ww	-	<0.0010	mg/kg ww		✓	Tissue	Metals
MB	Silver (Ag)-Total	805430	WG2704091-1	<0.0010		mg/kg ww	-	<0.0010	mg/kg ww		✓	Tissue	Metals
MB	Silver (Ag)-Total	805445	WG2704117-5	<0.0010		mg/kg ww	-	<0.0010	mg/kg ww		✓	Tissue	Metals
MB	Sodium (Na)-Total	804300	WG2702663-1	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Sodium (Na)-Total	805064	WG2703646-1	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Sodium (Na)-Total	805430	WG2704091-1	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Sodium (Na)-Total	805445	WG2704117-5	<20		mg/kg	-	<20	mg/kg		✓	Tissue	Metals
MB	Sodium (Na)-Total	804300	WG2702663-1	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Sodium (Na)-Total	805064	WG2703646-1	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals
MB	Sodium (Na)-Total	805430	WG2704091-1	<4.0		mg/kg ww	-	<4.0	mg/kg ww		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Sodium (Na)-Total	805445	WG2704117-5	<4.0		mg/kg wwt	-	<4.0	mg/kg wwt		✓	Tissue	Metals
MB	Strontium (Sr)-Total	804300	WG2702663-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Strontium (Sr)-Total	805064	WG2703646-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Strontium (Sr)-Total	805430	WG2704091-1	<0.050		mg/kg	-	<0.050	mg/kg		✓	Tissue	Metals
MB	Strontium (Sr)-Total	805445	WG2704117-5	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Strontium (Sr)-Total	804300	WG2702663-1	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Strontium (Sr)-Total	805064	WG2703646-1	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Strontium (Sr)-Total	805430	WG2704091-1	<0.010		mg/kg wwt	-	<0.010	mg/kg wwt		✓	Tissue	Metals
MB	Strontium (Sr)-Total	805445	WG2704117-5	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Tellurium (Te)-Total	804300	WG2702663-1	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Tellurium (Te)-Total	805064	WG2703646-1	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Tellurium (Te)-Total	805430	WG2704091-1	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Tellurium (Te)-Total	805445	WG2704117-5	<0.020		mg/kg	-	<0.020	mg/kg		✓	Tissue	Metals
MB	Tellurium (Te)-Total	804300	WG2702663-1	<0.0040		mg/kg wwt	-	<0.0040	mg/kg wwt		✓	Tissue	Metals
MB	Tellurium (Te)-Total	805064	WG2703646-1	<0.0040		mg/kg wwt	-	<0.0040	mg/kg wwt		✓	Tissue	Metals
MB	Tellurium (Te)-Total	805430	WG2704091-1	<0.0040		mg/kg wwt	-	<0.0040	mg/kg wwt		✓	Tissue	Metals
MB	Tellurium (Te)-Total	805445	WG2704117-5	<0.0040		mg/kg wwt	-	<0.0040	mg/kg wwt		✓	Tissue	Metals
MB	Thallium (Tl)-Total	804300	WG2702663-1	<0.0020		mg/kg	-	<0.0020	mg/kg		✓	Tissue	Metals
MB	Thallium (Tl)-Total	805064	WG2703646-1	<0.0020		mg/kg	-	<0.0020	mg/kg		✓	Tissue	Metals
MB	Thallium (Tl)-Total	805430	WG2704091-1	<0.0020		mg/kg	-	<0.0020	mg/kg		✓	Tissue	Metals
MB	Thallium (Tl)-Total	805445	WG2704117-5	<0.0020		mg/kg	-	<0.0020	mg/kg		✓	Tissue	Metals
MB	Thallium (Tl)-Total	804300	WG2702663-1	<0.00040		mg/kg wwt	-	<0.00040	mg/kg wwt		✓	Tissue	Metals
MB	Thallium (Tl)-Total	805064	WG2703646-1	<0.00040		mg/kg wwt	-	<0.00040	mg/kg wwt		✓	Tissue	Metals
MB	Thallium (Tl)-Total	805430	WG2704091-1	<0.00040		mg/kg wwt	-	<0.00040	mg/kg wwt		✓	Tissue	Metals
MB	Thallium (Tl)-Total	805445	WG2704117-5	<0.00040		mg/kg wwt	-	<0.00040	mg/kg wwt		✓	Tissue	Metals
MB	Tin (Sn)-Total	804300	WG2702663-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Tin (Sn)-Total	805064	WG2703646-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Tin (Sn)-Total	805430	WG2704091-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Tin (Sn)-Total	805445	WG2704117-5	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Tin (Sn)-Total	804300	WG2702663-1	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

* QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Tin (Sn)-Total	805064	WG2703646-1	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Tin (Sn)-Total	805430	WG2704091-1	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Tin (Sn)-Total	805445	WG2704117-5	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Uranium (U)-Total	804300	WG2702663-1	<0.0020		mg/kg	-	<0.0020	mg/kg		✓	Tissue	Metals
MB	Uranium (U)-Total	805064	WG2703646-1	<0.0020		mg/kg	-	<0.0020	mg/kg		✓	Tissue	Metals
MB	Uranium (U)-Total	805430	WG2704091-1	<0.0020		mg/kg	-	<0.0020	mg/kg		✓	Tissue	Metals
MB	Uranium (U)-Total	805445	WG2704117-5	<0.0020		mg/kg	-	<0.0020	mg/kg		✓	Tissue	Metals
MB	Uranium (U)-Total	804300	WG2702663-1	<0.00040		mg/kg wwt	-	<0.00040	mg/kg wwt		✓	Tissue	Metals
MB	Uranium (U)-Total	805064	WG2703646-1	<0.00040		mg/kg wwt	-	<0.00040	mg/kg wwt		✓	Tissue	Metals
MB	Uranium (U)-Total	805430	WG2704091-1	<0.00040		mg/kg wwt	-	<0.00040	mg/kg wwt		✓	Tissue	Metals
MB	Uranium (U)-Total	805445	WG2704117-5	<0.00040		mg/kg wwt	-	<0.00040	mg/kg wwt		✓	Tissue	Metals
MB	Vanadium (V)-Total	804300	WG2702663-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Vanadium (V)-Total	805064	WG2703646-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Vanadium (V)-Total	805430	WG2704091-1	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Vanadium (V)-Total	805445	WG2704117-5	<0.10		mg/kg	-	<0.10	mg/kg		✓	Tissue	Metals
MB	Vanadium (V)-Total	804300	WG2702663-1	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Vanadium (V)-Total	805064	WG2703646-1	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Vanadium (V)-Total	805430	WG2704091-1	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Vanadium (V)-Total	805445	WG2704117-5	<0.020		mg/kg wwt	-	<0.020	mg/kg wwt		✓	Tissue	Metals
MB	Zinc (Zn)-Total	804300	WG2702663-1	<1.0		mg/kg	-	<1.0	mg/kg		✓	Tissue	Metals
MB	Zinc (Zn)-Total	805064	WG2703646-1	<1.0		mg/kg	-	<1.0	mg/kg		✓	Tissue	Metals
MB	Zinc (Zn)-Total	805430	WG2704091-1	<0.50		mg/kg	-	<0.50	mg/kg		✓	Tissue	Metals
MB	Zinc (Zn)-Total	805445	WG2704117-5	<1.0		mg/kg	-	<1.0	mg/kg		✓	Tissue	Metals
MB	Zinc (Zn)-Total	804300	WG2702663-1	<0.20		mg/kg wwt	-	<0.20	mg/kg wwt		✓	Tissue	Metals
MB	Zinc (Zn)-Total	805064	WG2703646-1	<0.20		mg/kg wwt	-	<0.20	mg/kg wwt		✓	Tissue	Metals
MB	Zinc (Zn)-Total	805430	WG2704091-1	<0.10		mg/kg wwt	-	<0.10	mg/kg wwt		✓	Tissue	Metals
MB	Zinc (Zn)-Total	805445	WG2704117-5	<0.20		mg/kg wwt	-	<0.20	mg/kg wwt		✓	Tissue	Metals
MB	Zirconium (Zr)-Total	804300	WG2702663-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Zirconium (Zr)-Total	805064	WG2703646-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Zirconium (Zr)-Total	805430	WG2704091-1	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Quality Control L2019410

Job Reference 0403488-0008

Report To Genevieve Morinville, ERM Consultants Canada Ltd.

Date Received 7-Nov-2017 22:49

Report Date 31-Jan-2018 15:34

Report Version 1

Qualifier Legend

MES Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Evaluation Legend

✓ QC Lot met ALS Data Quality Objectives

✗ QC Lot did not meet ALS Data Quality Objectives

QC Type	Analyte	QC Lot #	ALS QC ID	Result	Target	Units	%	Limit	Units	Qual	Eval	Matrix	Class
MB	Zirconium (Zr)-Total	805445	WG2704117-5	<0.20		mg/kg	-	<0.20	mg/kg		✓	Tissue	Metals
MB	Zirconium (Zr)-Total	804300	WG2702663-1	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Zirconium (Zr)-Total	805064	WG2703646-1	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Zirconium (Zr)-Total	805430	WG2704091-1	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals
MB	Zirconium (Zr)-Total	805445	WG2704117-5	<0.040		mg/kg ww	-	<0.040	mg/kg ww		✓	Tissue	Metals

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Methodology L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

ALS Test Code	ALS Test	Lab Location	Matrix	Method Reference	Methodology Description
Physical Tests (Tissue)					
MOISTURE-MICR-VA	Moisture in Tissue	Vancouver	Tissue	Puget Sound WQ Authority, Apr 1997	This analysis is carried out gravimetrically by drying the sample at <60 deg. C.
MOISTURE-TISS-VA	% Moisture in Tissues	Vancouver	Tissue	Puget Sound WQ Authority, Apr 1997	This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.
Metals (Tissue)					
AG-DRY-CCMS-N-VA	Silver in Tissue by CRC ICPMS (DRY)	Vancouver	Tissue	EPA 200.3/6020A	This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A). Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
AG-DRY-MICR-HRMS-VA	Silver in Tissue by HR-ICPMS Micro (DRY)	Vancouver	Tissue	EPA 200.3/200.8	Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on dry weight basis.
AG-WET-CCMS-N-VA	Silver in Tissue by CRC ICPMS (WET)	Vancouver	Tissue	EPA 200.3/6020A	This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A). Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Methodology L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

ALS Test Code	ALS Test	Lab Location	Matrix	Method Reference	Methodology Description
AG-WET-MICR-HRMS-VA	Silver in Tissue by HR-ICPMS Micro (WET)	Vancouver	Tissue	EPA 200.3/200.8	Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on wet weight basis.
HG-DRY-CVAFS-N-VA	Mercury in Tissue by CVAFS (DRY)	Vancouver	Tissue	EPA 200.3, EPA 245.7	This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.
HG-DRY-MICR-CVAF-VA	Mercury in Tissue by CVAFS Micro (DRY)	Vancouver	Tissue	EPA 200.3, EPA 245.7	This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.
HG-WET-CVAFS-N-VA	Mercury in Tissue by CVAFS (WET)	Vancouver	Tissue	EPA 200.3, EPA 245.7	This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.
HG-WET-MICR-CVAF-VA	Mercury in Tissue by CVAFS Micro (WET)	Vancouver	Tissue	EPA 200.3, EPA 245.7	This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Methodology L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

ALS Test Code	ALS Test	Lab Location	Matrix	Method Reference	Methodology Description
MET-DRY-CCMS-N-VA	Metals in Tissue by CRC ICPMS (DRY)	Vancouver	Tissue	EPA 200.3/6020A	This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A). Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
MET-DRY-MICR-HRMS-VA	Metals in Tissue by HR-ICPMS Micro (DRY)	Vancouver	Tissue	EPA 200.3/200.8	Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on dry weight basis. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
MET-WET-CCMS-N-VA	Metals in Tissue by CRC ICPMS (WET)	Vancouver	Tissue	EPA 200.3/6020A	This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A). Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Methodology L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

ALS Test Code	ALS Test	Lab Location	Matrix	Method Reference	Methodology Description
MET-WET-MICR-HRMS-VA	Metals in Tissue by HR-ICPMS Micro (WET)	Vancouver	Tissue	EPA 200.3/200.8	Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on wet weight basis. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Detection Limits L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID		505-8	505-9	505-10	505-11	505-12	505-13	505-14	505-15	501-11	501-12	501-13	501-14	501-15	501-16	501-17	501-18	511-10
Date Sampled		11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017
Time Sampled		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2019410-1	L2019410-2	L2019410-3	L2019410-4	L2019410-5	L2019410-6	L2019410-7	L2019410-8	L2019410-9	L2019410-10	L2019410-11	L2019410-12	L2019410-13	L2019410-14	L2019410-15	L2019410-16	L2019410-17
Parameter	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests (Tissue)																		
% Moisture	%	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.50	2.0	2.0	0.50
Metals (Tissue)																		
Aluminum (Al)-Total	mg/kg	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Aluminum (Al)-Total	mg/kg wwt	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.40	1.0	1.0	0.40
Antimony (Sb)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Antimony (Sb)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Arsenic (As)-Total	mg/kg	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.020	0.030	0.030	0.020
Arsenic (As)-Total	mg/kg wwt	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0040	0.0060	0.0060	0.0040
Barium (Ba)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Barium (Ba)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Beryllium (Be)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Beryllium (Be)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Bismuth (Bi)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Bismuth (Bi)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Boron (B)-Total	mg/kg	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Boron (B)-Total	mg/kg wwt	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Cadmium (Cd)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.0050	0.010	0.010	0.0050
Cadmium (Cd)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0010	0.0020	0.0020	0.0010
Calcium (Ca)-Total	mg/kg	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Calcium (Ca)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Cesium (Cs)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Cesium (Cs)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Chromium (Cr)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.050	0.20	0.20	0.050
Chromium (Cr)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.010	0.040	0.040	0.010
Cobalt (Co)-Total	mg/kg	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Cobalt (Co)-Total	mg/kg wwt	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Copper (Cu)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10	0.20	0.20	0.10
Copper (Cu)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.020	0.040	0.040	0.020
Iron (Fe)-Total	mg/kg	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0
Iron (Fe)-Total	mg/kg wwt	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.60	1.0	1.0	0.60
Lead (Pb)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.020	0.050	0.050	0.020
Lead (Pb)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.0040	0.010	0.010	0.0040
Lithium (Li)-Total	mg/kg	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Lithium (Li)-Total	mg/kg wwt	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Magnesium (Mg)-Total	mg/kg	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Magnesium (Mg)-Total	mg/kg wwt	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Detection Limits L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID		511-11	511-12	511-13	511-14	511-15	511-16	511-17	508-5	508-6	508-7	508-8	508-9	508-10	508-11	508-12	509-6
Date Sampled		12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017
Time Sampled		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2019410-18	L2019410-19	L2019410-20	L2019410-21	L2019410-22	L2019410-23	L2019410-24	L2019410-25	L2019410-26	L2019410-27	L2019410-28	L2019410-29	L2019410-30	L2019410-31	L2019410-32	L2019410-33
Parameter	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests (Tissue)																	
% Moisture	%	0.50	2.0	2.0	2.0	2.0	2.0	0.50	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Metals (Tissue)																	
Aluminum (Al)-Total	mg/kg	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Aluminum (Al)-Total	mg/kg wwt	0.40	1.0	1.0	1.0	1.0	1.0	0.40	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Antimony (Sb)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Antimony (Sb)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Arsenic (As)-Total	mg/kg	0.020	0.030	0.030	0.030	0.030	0.030	0.020	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030
Arsenic (As)-Total	mg/kg wwt	0.0040	0.0060	0.0060	0.0060	0.0060	0.0060	0.0040	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060
Barium (Ba)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Barium (Ba)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Beryllium (Be)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Beryllium (Be)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Bismuth (Bi)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Bismuth (Bi)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Boron (B)-Total	mg/kg	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Boron (B)-Total	mg/kg wwt	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Cadmium (Cd)-Total	mg/kg	0.0050	0.010	0.010	0.010	0.010	0.010	0.0050	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Cadmium (Cd)-Total	mg/kg wwt	0.0010	0.0020	0.0020	0.0020	0.0020	0.0020	0.0010	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Calcium (Ca)-Total	mg/kg	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Calcium (Ca)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Cesium (Cs)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Cesium (Cs)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Chromium (Cr)-Total	mg/kg	0.050	0.20	0.20	0.20	0.20	0.20	0.050	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Chromium (Cr)-Total	mg/kg wwt	0.010	0.040	0.040	0.040	0.040	0.040	0.010	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Cobalt (Co)-Total	mg/kg	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Cobalt (Co)-Total	mg/kg wwt	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Copper (Cu)-Total	mg/kg	0.10	0.20	0.20	0.20	0.20	0.20	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Copper (Cu)-Total	mg/kg wwt	0.020	0.040	0.040	0.040	0.040	0.040	0.020	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Iron (Fe)-Total	mg/kg	3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Iron (Fe)-Total	mg/kg wwt	0.60	1.0	1.0	1.0	1.0	1.0	0.60	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead (Pb)-Total	mg/kg	0.020	0.050	0.050	0.050	0.050	0.050	0.020	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Lead (Pb)-Total	mg/kg wwt	0.0040	0.010	0.010	0.010	0.010	0.010	0.0040	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Lithium (Li)-Total	mg/kg	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Lithium (Li)-Total	mg/kg wwt	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Magnesium (Mg)-Total	mg/kg	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Magnesium (Mg)-Total	mg/kg wwt	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Detection Limits L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID		509-7	509-8	509-9	509-10	509-11	509-12	509-13	502-10	502-11	502-12	502-13	502-14	502-15	502-16	502-17	512-6
Date Sampled		13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017
Time Sampled		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2019410-34	L2019410-35	L2019410-36	L2019410-37	L2019410-38	L2019410-39	L2019410-40	L2019410-41	L2019410-42	L2019410-43	L2019410-44	L2019410-45	L2019410-46	L2019410-47	L2019410-48	L2019410-49
Parameter	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests (Tissue)																	
% Moisture	%	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.50
Metals (Tissue)																	
Aluminum (Al)-Total	mg/kg	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Aluminum (Al)-Total	mg/kg wwt	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.40
Antimony (Sb)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Antimony (Sb)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Arsenic (As)-Total	mg/kg	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.020
Arsenic (As)-Total	mg/kg wwt	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0040
Barium (Ba)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Barium (Ba)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Beryllium (Be)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Beryllium (Be)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Bismuth (Bi)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Bismuth (Bi)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Boron (B)-Total	mg/kg	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Boron (B)-Total	mg/kg wwt	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Cadmium (Cd)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.0050
Cadmium (Cd)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0010
Calcium (Ca)-Total	mg/kg	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Calcium (Ca)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Cesium (Cs)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Cesium (Cs)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Chromium (Cr)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.050
Chromium (Cr)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.010
Cobalt (Co)-Total	mg/kg	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Cobalt (Co)-Total	mg/kg wwt	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Copper (Cu)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
Copper (Cu)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.020
Iron (Fe)-Total	mg/kg	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0
Iron (Fe)-Total	mg/kg wwt	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.60
Lead (Pb)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.020
Lead (Pb)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.0040
Lithium (Li)-Total	mg/kg	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Lithium (Li)-Total	mg/kg wwt	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Magnesium (Mg)-Total	mg/kg	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Magnesium (Mg)-Total	mg/kg wwt	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Detection Limits L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID		512-7	512-8	512-9	512-10	512-11	512-12	512-13
Date Sampled		14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017
Time Sampled		0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2019410-50	L2019410-51	L2019410-52	L2019410-53	L2019410-54	L2019410-55	L2019410-56
Parameter	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests (Tissue)								
% Moisture	%	2.0	2.0	2.0	2.0	2.0	0.50	0.50
Metals (Tissue)								
Aluminum (Al)-Total	mg/kg	5.0	5.0	5.0	5.0	5.0	2.0	2.0
Aluminum (Al)-Total	mg/kg wwt	1.0	1.0	1.0	1.0	1.0	0.40	0.40
Antimony (Sb)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Antimony (Sb)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Arsenic (As)-Total	mg/kg	0.030	0.030	0.030	0.030	0.030	0.020	0.020
Arsenic (As)-Total	mg/kg wwt	0.0060	0.0060	0.0060	0.0060	0.0060	0.0040	0.0040
Barium (Ba)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Barium (Ba)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Beryllium (Be)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Beryllium (Be)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Bismuth (Bi)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Bismuth (Bi)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Boron (B)-Total	mg/kg	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Boron (B)-Total	mg/kg wwt	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Cadmium (Cd)-Total	mg/kg	0.010	0.010	0.010	0.010	0.010	0.0050	0.0050
Cadmium (Cd)-Total	mg/kg wwt	0.0020	0.0020	0.0020	0.0020	0.0020	0.0010	0.0010
Calcium (Ca)-Total	mg/kg	20	20	20	20	20	20	20
Calcium (Ca)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Cesium (Cs)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Cesium (Cs)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Chromium (Cr)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.050	0.050
Chromium (Cr)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.010	0.010
Cobalt (Co)-Total	mg/kg	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Cobalt (Co)-Total	mg/kg wwt	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Copper (Cu)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.10	0.10
Copper (Cu)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.020	0.020
Iron (Fe)-Total	mg/kg	5.0	5.0	5.0	5.0	5.0	3.0	3.0
Iron (Fe)-Total	mg/kg wwt	1.0	1.0	1.0	1.0	1.0	0.60	0.60
Lead (Pb)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.020	0.020
Lead (Pb)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.0040	0.0040
Lithium (Li)-Total	mg/kg	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Lithium (Li)-Total	mg/kg wwt	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Magnesium (Mg)-Total	mg/kg	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Magnesium (Mg)-Total	mg/kg wwt	0.40	0.40	0.40	0.40	0.40	0.40	0.40

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Detection Limits L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID		505-8	505-9	505-10	505-11	505-12	505-13	505-14	505-15	501-11	501-12	501-13	501-14	501-15	501-16	501-17	501-18	511-10
Date Sampled		11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	11-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017
Time Sampled		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2019410-1	L2019410-2	L2019410-3	L2019410-4	L2019410-5	L2019410-6	L2019410-7	L2019410-8	L2019410-9	L2019410-10	L2019410-11	L2019410-12	L2019410-13	L2019410-14	L2019410-15	L2019410-16	L2019410-17
Parameter	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Manganese (Mn)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Manganese (Mn)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Mercury (Hg)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Mercury (Hg)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Molybdenum (Mo)-Total	mg/kg	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.020	0.040	0.040	0.020
Molybdenum (Mo)-Total	mg/kg wwt	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0040	0.0080	0.0080	0.0040
Nickel (Ni)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Nickel (Ni)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Phosphorus (P)-Total	mg/kg	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Phosphorus (P)-Total	mg/kg wwt	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Potassium (K)-Total	mg/kg	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Potassium (K)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Rubidium (Rb)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Rubidium (Rb)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Selenium (Se)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.050	0.10	0.10	0.050
Selenium (Se)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.010	0.020	0.020	0.010
Silver (Ag)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Silver (Ag)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Sodium (Na)-Total	mg/kg	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Sodium (Na)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Strontium (Sr)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.050	0.10	0.10	0.050
Strontium (Sr)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.010	0.020	0.020	0.010
Tellurium (Te)-Total	mg/kg	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Tellurium (Te)-Total	mg/kg wwt	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Thallium (Tl)-Total	mg/kg	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Thallium (Tl)-Total	mg/kg wwt	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040
Tin (Sn)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Tin (Sn)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Uranium (U)-Total	mg/kg	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Uranium (U)-Total	mg/kg wwt	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040
Vanadium (V)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Vanadium (V)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Zinc (Zn)-Total	mg/kg	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.50	1.0	1.0	0.50
Zinc (Zn)-Total	mg/kg wwt	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10	0.20	0.20	0.10
Zirconium (Zr)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Zirconium (Zr)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Detection Limits L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID		511-11	511-12	511-13	511-14	511-15	511-16	511-17	508-5	508-6	508-7	508-8	508-9	508-10	508-11	508-12	509-6
Date Sampled		12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	12-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017
Time Sampled		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2019410-18	L2019410-19	L2019410-20	L2019410-21	L2019410-22	L2019410-23	L2019410-24	L2019410-25	L2019410-26	L2019410-27	L2019410-28	L2019410-29	L2019410-30	L2019410-31	L2019410-32	L2019410-33
Parameter	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Manganese (Mn)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Manganese (Mn)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Mercury (Hg)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Mercury (Hg)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Molybdenum (Mo)-Total	mg/kg	0.020	0.040	0.040	0.040	0.040	0.040	0.020	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Molybdenum (Mo)-Total	mg/kg wwt	0.0040	0.0080	0.0080	0.0080	0.0080	0.0080	0.0040	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080
Nickel (Ni)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Nickel (Ni)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Phosphorus (P)-Total	mg/kg	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Phosphorus (P)-Total	mg/kg wwt	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Potassium (K)-Total	mg/kg	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Potassium (K)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Rubidium (Rb)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Rubidium (Rb)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Selenium (Se)-Total	mg/kg	0.050	0.10	0.10	0.10	0.10	0.10	0.050	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Selenium (Se)-Total	mg/kg wwt	0.010	0.020	0.020	0.020	0.020	0.020	0.010	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Silver (Ag)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Silver (Ag)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Sodium (Na)-Total	mg/kg	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Sodium (Na)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Strontium (Sr)-Total	mg/kg	0.050	0.10	0.10	0.10	0.10	0.10	0.050	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Strontium (Sr)-Total	mg/kg wwt	0.010	0.020	0.020	0.020	0.020	0.020	0.010	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Tellurium (Te)-Total	mg/kg	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Tellurium (Te)-Total	mg/kg wwt	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Thallium (Tl)-Total	mg/kg	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Thallium (Tl)-Total	mg/kg wwt	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040
Tin (Sn)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Tin (Sn)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Uranium (U)-Total	mg/kg	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Uranium (U)-Total	mg/kg wwt	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040
Vanadium (V)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Vanadium (V)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Zinc (Zn)-Total	mg/kg	0.50	1.0	1.0	1.0	1.0	1.0	0.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Zinc (Zn)-Total	mg/kg wwt	0.10	0.20	0.20	0.20	0.20	0.20	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Zirconium (Zr)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Zirconium (Zr)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Detection Limits L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID		509-7	509-8	509-9	509-10	509-11	509-12	509-13	502-10	502-11	502-12	502-13	502-14	502-15	502-16	502-17	512-6
Date Sampled		13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	13-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017
Time Sampled		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2019410-34	L2019410-35	L2019410-36	L2019410-37	L2019410-38	L2019410-39	L2019410-40	L2019410-41	L2019410-42	L2019410-43	L2019410-44	L2019410-45	L2019410-46	L2019410-47	L2019410-48	L2019410-49
Parameter	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Manganese (Mn)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Manganese (Mn)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Mercury (Hg)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Mercury (Hg)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Molybdenum (Mo)-Total	mg/kg	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.020
Molybdenum (Mo)-Total	mg/kg wwt	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0040
Nickel (Ni)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Nickel (Ni)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Phosphorus (P)-Total	mg/kg	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Phosphorus (P)-Total	mg/kg wwt	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Potassium (K)-Total	mg/kg	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Potassium (K)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Rubidium (Rb)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Rubidium (Rb)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Selenium (Se)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.050
Selenium (Se)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.010
Silver (Ag)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Silver (Ag)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Sodium (Na)-Total	mg/kg	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Sodium (Na)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Strontium (Sr)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.050
Strontium (Sr)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.010
Tellurium (Te)-Total	mg/kg	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Tellurium (Te)-Total	mg/kg wwt	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Thallium (Tl)-Total	mg/kg	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Thallium (Tl)-Total	mg/kg wwt	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040
Tin (Sn)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Tin (Sn)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Uranium (U)-Total	mg/kg	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Uranium (U)-Total	mg/kg wwt	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040
Vanadium (V)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Vanadium (V)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Zinc (Zn)-Total	mg/kg	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.50
Zinc (Zn)-Total	mg/kg wwt	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
Zirconium (Zr)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Zirconium (Zr)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040

Appendix 11-D. Tissue Metals Analysis and Quality Assurance/Quality Control Results, 2017

Detection Limits L2019410

Job Reference 0403488-0008
Report To Genevieve Morinville, ERM Consultants Canada Ltd.
Date Received 7-Nov-2017 22:49
Report Date 31-Jan-2018 15:34
Report Version 1

Client Sample ID		512-7	512-8	512-9	512-10	512-11	512-12	512-13
Date Sampled		14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017	14-Oct-2017
Time Sampled		0:00	0:00	0:00	0:00	0:00	0:00	0:00
ALS Sample ID		L2019410-50	L2019410-51	L2019410-52	L2019410-53	L2019410-54	L2019410-55	L2019410-56
Parameter	Units	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Manganese (Mn)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Manganese (Mn)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Mercury (Hg)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Mercury (Hg)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Molybdenum (Mo)-Total	mg/kg	0.040	0.040	0.040	0.040	0.040	0.020	0.020
Molybdenum (Mo)-Total	mg/kg wwt	0.0080	0.0080	0.0080	0.0080	0.0080	0.0040	0.0040
Nickel (Ni)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Nickel (Ni)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040
Phosphorus (P)-Total	mg/kg	10	10	10	10	10	10	10
Phosphorus (P)-Total	mg/kg wwt	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Potassium (K)-Total	mg/kg	20	20	20	20	20	20	20
Potassium (K)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Rubidium (Rb)-Total	mg/kg	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Rubidium (Rb)-Total	mg/kg wwt	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Selenium (Se)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.050	0.050
Selenium (Se)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.010	0.010
Silver (Ag)-Total	mg/kg	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Silver (Ag)-Total	mg/kg wwt	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Sodium (Na)-Total	mg/kg	20	20	20	20	20	20	20
Sodium (Na)-Total	mg/kg wwt	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Strontium (Sr)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.050	0.050
Strontium (Sr)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.010	0.010
Tellurium (Te)-Total	mg/kg	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Tellurium (Te)-Total	mg/kg wwt	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040
Thallium (Tl)-Total	mg/kg	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Thallium (Tl)-Total	mg/kg wwt	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040
Tin (Sn)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Tin (Sn)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Uranium (U)-Total	mg/kg	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Uranium (U)-Total	mg/kg wwt	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040
Vanadium (V)-Total	mg/kg	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Vanadium (V)-Total	mg/kg wwt	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Zinc (Zn)-Total	mg/kg	1.0	1.0	1.0	1.0	1.0	0.50	0.50
Zinc (Zn)-Total	mg/kg wwt	0.20	0.20	0.20	0.20	0.20	0.10	0.10
Zirconium (Zr)-Total	mg/kg	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Zirconium (Zr)-Total	mg/kg wwt	0.040	0.040	0.040	0.040	0.040	0.040	0.040

Appendix 11-E *Tissue Metals Analysis and Quality Assurance
Quality Control Results, 2018*



ERM Consultants Canada Ltd.
ATTN: Kirsten Seymour
1500-1111 West Hastings Street
Vancouver BC V6E 2J3

Date Received: 28-JUN-18
Report Date: 20-JUL-18 13:27 (MT)
Version: FINAL

Client Phone: 867-920-2090

Certificate of Analysis

Lab Work Order #: L2120822
Project P.O. #: NOT SUBMITTED
Job Reference: 0403488-0108
C of C Numbers:
Legal Site Desc:

Amber Springer, B.Sc
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

20-JUL-18 13:27 (MT)

Version: FINAL

Sample ID Description Sampled Date Sampled Time Client ID		L2120822-1 Tissue 12-JUN-18 11:30 WQS01-RB11	L2120822-2 Tissue 12-JUN-18 11:31 WQS01-RB12	L2120822-3 Tissue 12-JUN-18 11:35 WQS01-RB13	L2120822-4 Tissue 12-JUN-18 11:38 WQS01-RB14	L2120822-5 Tissue 12-JUN-18 11:43 WQS01-RB15
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	76.7	77.5	76.5	78.7	78.7
Metals	Aluminum (Al)-Total (mg/kg ww)	33.2	8.23	7.84	38.5	35.0
	Antimony (Sb)-Total (mg/kg ww)	0.0047	<0.0020	<0.0020	0.0031	0.0027
	Arsenic (As)-Total (mg/kg ww)	0.0693	0.0485	0.0331	0.0620	0.0615
	Barium (Ba)-Total (mg/kg ww)	1.23	1.44	1.57	1.77	3.66
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg ww)	0.0299	0.0801	0.0134	0.0314	0.0236
	Calcium (Ca)-Total (mg/kg ww)	5250	7290	7100	7960	7720
	Cesium (Cs)-Total (mg/kg ww)	0.175	0.166	0.172	0.161	0.176
	Chromium (Cr)-Total (mg/kg ww)	0.111	0.078	0.056	0.118	0.108
	Cobalt (Co)-Total (mg/kg ww)	0.0398	0.0324	0.0245	0.0644	0.0605
	Copper (Cu)-Total (mg/kg ww)	0.814	0.828	0.754	0.875	0.785
	Iron (Fe)-Total (mg/kg ww)	97.5	23.5	21.1	87.3	74.2
	Lead (Pb)-Total (mg/kg ww)	0.0131	0.0042	<0.0040	0.0132	0.0087
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg ww)	312	334	305	336	351
	Manganese (Mn)-Total (mg/kg ww)	3.28	2.16	3.41	4.51	2.71
	Mercury (Hg)-Total (mg/kg ww)	0.0202	0.0198	0.0153	0.0193	0.0182
	Molybdenum (Mo)-Total (mg/kg ww)	0.0116	0.0104	0.0102	0.0125	0.0098
	Nickel (Ni)-Total (mg/kg ww)	0.059	0.050	0.077	0.061	0.043
	Phosphorus (P)-Total (mg/kg ww)	5260	6460	6070	6540	6600
	Potassium (K)-Total (mg/kg ww)	3340	3160	2870	3020	3140
	Rubidium (Rb)-Total (mg/kg ww)	2.94	2.43	2.33	2.31	2.67
	Selenium (Se)-Total (mg/kg ww)	0.528	0.509	0.550	0.579	0.665
	Sodium (Na)-Total (mg/kg ww)	964	1010	955	1160	1140
	Strontium (Sr)-Total (mg/kg ww)	4.51	5.98	6.60	6.77	5.96
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg ww)	0.00293	0.00284	0.00316	0.00378	0.00454
	Tin (Sn)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	<0.020
	Uranium (U)-Total (mg/kg ww)	0.00275	0.00075	0.00080	0.00222	0.00197
	Vanadium (V)-Total (mg/kg ww)	0.274	0.068	0.055	0.219	0.197
	Zinc (Zn)-Total (mg/kg ww)	23.4	26.0	23.0	29.5	27.2
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2120822-6 Tissue 12-JUN-18 11:46 WQS01-RB16	L2120822-7 Tissue 19-JUN-18 10:02 WQS02-RB1	L2120822-8 Tissue 19-JUN-18 10:03 WQS02-RB2	L2120822-9 Tissue 19-JUN-18 10:10 WQS02-RB3	L2120822-10 Tissue 19-JUN-18 10:12 WQS02-RB4
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	75.9	78.6	76.8	77.3	76.3
Metals	Aluminum (Al)-Total (mg/kg ww)	110	22.3	20.6	13.1	19.8
	Antimony (Sb)-Total (mg/kg ww)	0.0035	0.0022	0.0020	<0.0020	0.0021
	Arsenic (As)-Total (mg/kg ww)	0.115	0.0558	0.0985	0.0481	0.0812
	Barium (Ba)-Total (mg/kg ww)	1.52	1.33	1.27	1.27	1.23
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg ww)	0.0580	0.0218	0.0271	0.0172	0.0261
	Calcium (Ca)-Total (mg/kg ww)	6690	6090	7110	5820	5650
	Cesium (Cs)-Total (mg/kg ww)	0.209	0.112	0.0908	0.0396	0.0808
	Chromium (Cr)-Total (mg/kg ww)	0.214	0.070	0.124	0.036	0.069
	Cobalt (Co)-Total (mg/kg ww)	0.0895	0.0356	0.0525	0.0313	0.0405
	Copper (Cu)-Total (mg/kg ww)	1.04	1.07	0.912	0.818	1.02
	Iron (Fe)-Total (mg/kg ww)	179	41.2	39.8	32.9	37.4
	Lead (Pb)-Total (mg/kg ww)	0.0214	0.0065	0.0061	<0.0040	0.0055
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg ww)	389	323	325	330	308
	Manganese (Mn)-Total (mg/kg ww)	5.26	4.49	3.73	8.36	3.88
	Mercury (Hg)-Total (mg/kg ww)	0.0203	0.0164	0.0179	0.0487	0.0357
	Molybdenum (Mo)-Total (mg/kg ww)	0.0119	0.0103	0.0124	0.0104	0.0130
	Nickel (Ni)-Total (mg/kg ww)	0.130	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg ww)	6150	5900	6300	5750	5530
	Potassium (K)-Total (mg/kg ww)	3450	3460	2960	3270	3080
	Rubidium (Rb)-Total (mg/kg ww)	3.15	2.57	2.07	1.71	2.01
	Selenium (Se)-Total (mg/kg ww)	0.731	0.660	0.813	0.356	0.632
	Sodium (Na)-Total (mg/kg ww)	1010	1060	1010	922	982
	Strontium (Sr)-Total (mg/kg ww)	5.32	4.93	5.94	4.35	4.44
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg ww)	0.00365	0.00482	0.00484	0.00450	0.00410
	Tin (Sn)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	<0.020
	Uranium (U)-Total (mg/kg ww)	0.00342	0.00147	0.00119	0.00063	0.00098
	Vanadium (V)-Total (mg/kg ww)	0.475	0.094	0.104	0.073	0.099
	Zinc (Zn)-Total (mg/kg ww)	25.4	24.5	25.7	21.6	28.1
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2120822-11 Tissue 19-JUN-18 10:15 WQS02-RB5	L2120822-12 Tissue 19-JUN-18 10:23 WQS02-RB6	L2120822-13 Tissue 19-JUN-18 10:24 WQS02-RB7	L2120822-14 Tissue 19-JUN-18 10:28 WQS02-RB8	L2120822-15 Tissue 18-JUN-18 14:10 WQS05-RB3
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	76.9	77.1	76.9	77.2	77.7
Metals	Aluminum (Al)-Total (mg/kg ww)	50.5	22.7	30.8	22.3	19.6
	Antimony (Sb)-Total (mg/kg ww)	0.0032	<0.0020	0.0023	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg ww)	0.127	0.106	0.129	0.0510	0.0503
	Barium (Ba)-Total (mg/kg ww)	1.79	0.996	1.32	1.46	1.61
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg ww)	0.0242	0.0303	0.0349	0.0177	0.0386
	Calcium (Ca)-Total (mg/kg ww)	6930	5210	7490	6970	6250
	Cesium (Cs)-Total (mg/kg ww)	0.0906	0.101	0.129	0.104	0.0363
	Chromium (Cr)-Total (mg/kg ww)	0.108	0.111	0.090	0.059	0.085
	Cobalt (Co)-Total (mg/kg ww)	0.0638	0.0436	0.0642	0.0380	0.0455
	Copper (Cu)-Total (mg/kg ww)	0.982	0.854	1.02	0.757	1.04
	Iron (Fe)-Total (mg/kg ww)	110	39.7	50.2	48.2	40.1
	Lead (Pb)-Total (mg/kg ww)	0.0124	0.0060	0.0077	0.0060	0.0088
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg ww)	361	333	394	353	342
	Manganese (Mn)-Total (mg/kg ww)	9.18	2.89	3.38	7.12	4.33
	Mercury (Hg)-Total (mg/kg ww)	0.0160	0.0161	0.0154	0.0179	0.0257
	Molybdenum (Mo)-Total (mg/kg ww)	0.0119	0.0123	0.0148	0.0109	0.0142
	Nickel (Ni)-Total (mg/kg ww)	0.074	<0.040	0.045	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg ww)	6420	5530	7200	6530	6080
	Potassium (K)-Total (mg/kg ww)	3390	3540	3730	3310	3500
	Rubidium (Rb)-Total (mg/kg ww)	2.27	2.61	2.97	2.60	1.77
	Selenium (Se)-Total (mg/kg ww)	0.566	0.990	0.905	0.664	0.665
	Sodium (Na)-Total (mg/kg ww)	958	1020	1140	1030	994
	Strontium (Sr)-Total (mg/kg ww)	5.50	4.01	5.51	5.43	4.67
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg ww)	0.00449	0.00487	0.00522	0.00444	0.00433
	Tin (Sn)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	<0.020
	Uranium (U)-Total (mg/kg ww)	0.00287	0.00130	0.00161	0.00129	0.00166
	Vanadium (V)-Total (mg/kg ww)	0.288	0.089	0.119	0.142	0.090
	Zinc (Zn)-Total (mg/kg ww)	25.7	23.1	26.9	27.7	27.0
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2120822-16 Tissue 18-JUN-18 14:15 WQS05-RB4	L2120822-17 Tissue 18-JUN-18 14:20 WQS05-RB5	L2120822-18 Tissue 18-JUN-18 14:25 WQS05-RB6	L2120822-19 Tissue 18-JUN-18 14:25 WQS05-RB7	L2120822-20 Tissue 18-JUN-18 14:40 WQS05-RB8
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	79.4	76.9	77.0	77.7	76.6
Metals	Aluminum (Al)-Total (mg/kg ww)	5.57	41.1	25.3	9.63	15.6
	Antimony (Sb)-Total (mg/kg ww)	0.0052	0.0021	0.0035	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg ww)	0.0397	0.140	0.0498	0.0321	0.0574
	Barium (Ba)-Total (mg/kg ww)	0.984	1.50	2.14	1.81	1.57
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg ww)	0.0146	0.0747	0.0547	0.0631	0.0546
	Calcium (Ca)-Total (mg/kg ww)	4340	5960	7480	6880	5770
	Cesium (Cs)-Total (mg/kg ww)	0.0277	0.0427	0.0436	0.0561	0.0453
	Chromium (Cr)-Total (mg/kg ww)	0.026	0.080	0.053	0.028	0.028
	Cobalt (Co)-Total (mg/kg ww)	0.0193	0.126	0.107	0.108	0.0898
	Copper (Cu)-Total (mg/kg ww)	0.609	0.990	1.00	1.11	1.17
	Iron (Fe)-Total (mg/kg ww)	14.3	84.6	57.4	27.9	35.4
	Lead (Pb)-Total (mg/kg ww)	0.0048	0.0154	0.0126	0.0115	0.0074
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg ww)	258	355	377	351	342
	Manganese (Mn)-Total (mg/kg ww)	1.85	3.40	3.15	2.78	2.85
	Mercury (Hg)-Total (mg/kg ww)	0.0140	0.0198	0.0161	0.0158	0.0117
	Molybdenum (Mo)-Total (mg/kg ww)	0.0092	0.0120	0.0146	0.0182	0.0126
	Nickel (Ni)-Total (mg/kg ww)	<0.040	0.064	0.042	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg ww)	4460	5640	6780	6270	5840
	Potassium (K)-Total (mg/kg ww)	2730	3460	3480	3250	3320
	Rubidium (Rb)-Total (mg/kg ww)	1.28	2.75	2.62	3.01	2.96
	Selenium (Se)-Total (mg/kg ww)	0.268	0.379	0.377	0.398	0.474
	Sodium (Na)-Total (mg/kg ww)	746	930	1000	965	882
	Strontium (Sr)-Total (mg/kg ww)	3.58	4.25	4.87	4.26	3.81
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg ww)	0.00264	0.00718	0.00820	0.00629	0.00693
	Tin (Sn)-Total (mg/kg ww)	<0.020	<0.020	<0.020	<0.020	<0.020
	Uranium (U)-Total (mg/kg ww)	<0.00040	0.00195	0.00166	0.00204	0.00109
	Vanadium (V)-Total (mg/kg ww)	0.031	0.193	0.115	0.048	0.075
	Zinc (Zn)-Total (mg/kg ww)	19.1	24.6	27.4	30.3	24.0
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2120822-21 Tissue 18-JUN-18 14:52 WQS05-RB9	L2120822-22 Tissue 20-JUN-18 10:50 WQS09-RB2	L2120822-23 Tissue 20-JUN-18 10:52 WQS09-RB3	L2120822-24 Tissue 20-JUN-18 10:58 WQS09-RB4	L2120822-25 Tissue 20-JUN-18 10:59 WQS09-RB5
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	75.9	77.4	77.2	77.1	76.5
Metals	Aluminum (Al)-Total (mg/kg ww)	16.2	89.6	11.3	99.6	22.2
	Antimony (Sb)-Total (mg/kg ww)	0.0024	0.0047	<0.0020	0.0039	0.0021
	Arsenic (As)-Total (mg/kg ww)	0.0347	0.110	0.0664	0.179	0.0537
	Barium (Ba)-Total (mg/kg ww)	3.15	2.09	1.54	2.64	1.59
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg ww)	0.0288	0.0520	0.0432	0.154	0.0345
	Calcium (Ca)-Total (mg/kg ww)	9950	5590	5900	6240	5780
	Cesium (Cs)-Total (mg/kg ww)	0.0407	0.0208	0.0165	0.0261	0.0157
	Chromium (Cr)-Total (mg/kg ww)	0.086	0.135	0.028	0.133	0.032
	Cobalt (Co)-Total (mg/kg ww)	0.0346	0.112	0.0653	0.114	0.0523
	Copper (Cu)-Total (mg/kg ww)	0.941	1.01	1.43	1.32	1.47
	Iron (Fe)-Total (mg/kg ww)	42.7	161	32.2	153	44.4
	Lead (Pb)-Total (mg/kg ww)	0.0140	0.0491	0.0247	0.0614	0.0506
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg ww)	358	336	328	367	366
	Manganese (Mn)-Total (mg/kg ww)	5.42	8.87	7.90	7.78	5.41
	Mercury (Hg)-Total (mg/kg ww)	0.0320	0.0136	0.0165	0.0141	0.0151
	Molybdenum (Mo)-Total (mg/kg ww)	0.0115	0.0283	0.0216	0.0262	0.0157
	Nickel (Ni)-Total (mg/kg ww)	0.086	0.102	<0.040	0.116	0.048
	Phosphorus (P)-Total (mg/kg ww)	7810	5490	5920	6000	6140
	Potassium (K)-Total (mg/kg ww)	2950	3200	3490	3400	3670
	Rubidium (Rb)-Total (mg/kg ww)	1.79	2.11	2.30	2.03	1.96
	Selenium (Se)-Total (mg/kg ww)	0.463	0.538	0.818	0.454	0.796
	Sodium (Na)-Total (mg/kg ww)	942	904	1050	952	984
	Strontium (Sr)-Total (mg/kg ww)	9.01	4.88	4.63	6.00	4.72
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg ww)	0.00516	0.00440	0.00517	0.00708	0.00457
	Tin (Sn)-Total (mg/kg ww)	<0.020	<0.020	0.031	0.047	0.033
	Uranium (U)-Total (mg/kg ww)	0.00212	0.00430	0.00245	0.00481	0.00164
	Vanadium (V)-Total (mg/kg ww)	0.104	0.368	0.073	0.330	0.110
	Zinc (Zn)-Total (mg/kg ww)	28.5	24.2	25.7	28.3	24.3
	Zirconium (Zr)-Total (mg/kg ww)	<0.040	0.064	<0.040	0.068	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2120822-26 Tissue 20-JUN-18 11:10 WQS09-RB6	L2120822-27 Tissue 20-JUN-18 11:20 WQS09-RB7	L2120822-29 Tissue 14-JUN-18 15:03 WQS11-RB3	L2120822-30 Tissue 14-JUN-18 15:08 WQS11-RB4	L2120822-31 Tissue 14-JUN-18 15:12 WQS11-RB5
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	77.3	78.6	78.3	78.4	78.8
Metals	Aluminum (Al)-Total (mg/kg ww)	69.6	119	6.57	85.9	30.3
	Antimony (Sb)-Total (mg/kg ww)	0.0033	0.0042	<0.0020	0.0028	<0.0020
	Arsenic (As)-Total (mg/kg ww)	0.0834	0.149	0.0577	0.0873	0.154
	Barium (Ba)-Total (mg/kg ww)	2.97	2.69	1.59	3.89	1.79
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg ww)	0.0634	0.0672	0.0342	0.142	0.0842
	Calcium (Ca)-Total (mg/kg ww)	7160	6420	7750	6970	7150
	Cesium (Cs)-Total (mg/kg ww)	0.0200	0.0245	0.0023	0.0128	0.0103
	Chromium (Cr)-Total (mg/kg ww)	0.094	0.160	0.018	0.110	0.045
	Cobalt (Co)-Total (mg/kg ww)	0.0962	0.122	0.0503	0.178	0.112
	Copper (Cu)-Total (mg/kg ww)	1.23	0.972	0.884	1.85	1.17
	Iron (Fe)-Total (mg/kg ww)	118	212	18.4	154	56.0
	Lead (Pb)-Total (mg/kg ww)	0.0527	0.0600	0.0153	0.0430	0.0164
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg ww)	384	364	352	400	352
	Manganese (Mn)-Total (mg/kg ww)	8.66	13.0	5.47	13.6	9.94
	Mercury (Hg)-Total (mg/kg ww)	0.0144	0.0150	0.0341	0.0298	0.0275
	Molybdenum (Mo)-Total (mg/kg ww)	0.0204	0.0219	0.0114	0.0238	0.0141
	Nickel (Ni)-Total (mg/kg ww)	0.068	0.108	<0.040	0.118	0.050
	Phosphorus (P)-Total (mg/kg ww)	6580	6110	7020	6810	6410
	Potassium (K)-Total (mg/kg ww)	3540	3190	3510	3540	3590
	Rubidium (Rb)-Total (mg/kg ww)	2.02	1.84	0.844	2.65	2.10
	Selenium (Se)-Total (mg/kg ww)	0.500	0.483	0.183	0.372	0.376
	Sodium (Na)-Total (mg/kg ww)	991	954	977	1130	1010
	Strontium (Sr)-Total (mg/kg ww)	6.27	5.46	9.70	5.70	9.03
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg ww)	0.00474	0.00442	0.00302	0.00558	0.00611
	Tin (Sn)-Total (mg/kg ww)	0.049	<0.020	<0.020	0.028	0.020
	Uranium (U)-Total (mg/kg ww)	0.00408	0.00597	0.00131	0.00981	0.00441
	Vanadium (V)-Total (mg/kg ww)	0.288	0.573	0.032	0.361	0.153
	Zinc (Zn)-Total (mg/kg ww)	29.2	21.9	32.6	31.7	26.2
	Zirconium (Zr)-Total (mg/kg ww)	0.058	0.076	<0.040	0.075	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2120822-32 Tissue 14-JUN-18 15:13 WQS11-RB6	L2120822-33 Tissue 14-JUN-18 15:20 WQS11-RB7	L2120822-34 Tissue 14-JUN-18 15:21 WQS11-RB8	L2120822-35 Tissue 14-JUN-18 15:26 WQS11-RB9	L2120822-36 Tissue 14-JUN-18 15:28 WQS11-RB10
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	78.6	77.7	77.4	78.1	75.2
Metals	Aluminum (Al)-Total (mg/kg ww)	43.1	11.7	9.60	48.0	19.8
	Antimony (Sb)-Total (mg/kg ww)	0.0021	<0.0020	<0.0020	<0.0020	0.0053
	Arsenic (As)-Total (mg/kg ww)	0.0658	0.106	0.0287	0.137	0.0662
	Barium (Ba)-Total (mg/kg ww)	2.07	1.53	2.33	2.04	3.61
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg ww)	0.110	0.0312	0.0356	0.0935	0.0569
	Calcium (Ca)-Total (mg/kg ww)	6420	6130	9420	6310	5760
	Cesium (Cs)-Total (mg/kg ww)	0.0085	0.0021	0.0072	0.0091	0.0128
	Chromium (Cr)-Total (mg/kg ww)	0.069	0.018	0.032	0.070	0.036
	Cobalt (Co)-Total (mg/kg ww)	0.149	0.0411	0.0678	0.137	0.101
	Copper (Cu)-Total (mg/kg ww)	1.45	1.60	1.33	1.32	1.08
	Iron (Fe)-Total (mg/kg ww)	79.9	30.1	25.8	88.1	45.9
	Lead (Pb)-Total (mg/kg ww)	0.0263	0.0059	0.0084	0.0289	0.0196
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg ww)	335	350	339	344	326
	Manganese (Mn)-Total (mg/kg ww)	13.0	12.6	5.06	10.4	5.79
	Mercury (Hg)-Total (mg/kg ww)	0.0148	0.0210	0.0474	0.0222	0.0194
	Molybdenum (Mo)-Total (mg/kg ww)	0.0161	0.0186	0.0147	0.0172	0.0106
	Nickel (Ni)-Total (mg/kg ww)	0.068	<0.040	<0.040	0.070	0.042
	Phosphorus (P)-Total (mg/kg ww)	6160	6160	7520	5960	5680
	Potassium (K)-Total (mg/kg ww)	3320	3840	3110	3300	3600
	Rubidium (Rb)-Total (mg/kg ww)	1.53	1.10	2.17	1.76	2.98
	Selenium (Se)-Total (mg/kg ww)	0.366	0.276	0.389	0.326	0.398
	Sodium (Na)-Total (mg/kg ww)	1040	1030	1080	1020	830
	Strontium (Sr)-Total (mg/kg ww)	5.43	4.78	7.26	5.22	4.53
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg ww)	0.00320	0.00136	0.00468	0.00405	0.00504
	Tin (Sn)-Total (mg/kg ww)	0.030	<0.020	<0.020	0.033	<0.020
	Uranium (U)-Total (mg/kg ww)	0.00526	0.00163	0.00252	0.00588	0.00372
	Vanadium (V)-Total (mg/kg ww)	0.210	0.067	0.064	0.223	0.104
	Zinc (Zn)-Total (mg/kg ww)	25.0	24.6	37.1	23.8	24.2
	Zirconium (Zr)-Total (mg/kg ww)	0.043	<0.040	<0.040	0.042	0.056

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2120822-37 Tissue 15-JUN-18 09:35 WQS12B-RB2	L2120822-38 Tissue 15-JUN-18 09:42 WQS12B-RB3	L2120822-39 Tissue 15-JUN-18 09:56 WQS12B-RB4	L2120822-40 Tissue 15-JUN-18 10:01 WQS12B-RB5	L2120822-41 Tissue 15-JUN-18 10:25 WQS12B-RB6
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	78.2	78.1	78.8	77.3	77.8
Metals	Aluminum (Al)-Total (mg/kg ww)	38.2	51.3	154	65.5	80.4
	Antimony (Sb)-Total (mg/kg ww)	0.0021	0.0027	0.0048	0.0026	0.0055
	Arsenic (As)-Total (mg/kg ww)	0.0513	0.0593	0.116	0.0647	0.160
	Barium (Ba)-Total (mg/kg ww)	1.18	2.12	4.52	2.84	2.91
	Beryllium (Be)-Total (mg/kg ww)	<0.0020	<0.0020	0.0031	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg ww)	0.0944	0.133	0.117	0.140	0.0957
	Calcium (Ca)-Total (mg/kg ww)	6780	5140	6860	5790	5830
	Cesium (Cs)-Total (mg/kg ww)	0.0089	0.0091	0.0182	0.0132	0.0103
	Chromium (Cr)-Total (mg/kg ww)	0.053	0.067	0.201	0.088	0.101
	Cobalt (Co)-Total (mg/kg ww)	0.0803	0.165	0.191	0.190	0.131
	Copper (Cu)-Total (mg/kg ww)	0.966	1.58	1.41	1.74	1.07
	Iron (Fe)-Total (mg/kg ww)	65.0	91.1	267	120	161
	Lead (Pb)-Total (mg/kg ww)	0.0224	0.0329	0.0560	0.0368	0.0384
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	0.12	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg ww)	338	330	388	340	343
	Manganese (Mn)-Total (mg/kg ww)	7.34	17.4	17.2	13.4	8.56
	Mercury (Hg)-Total (mg/kg ww)	0.0629	0.0184	0.0267	0.0140	0.0158
	Molybdenum (Mo)-Total (mg/kg ww)	0.0159	0.0224	0.0192	0.0154	0.0172
	Nickel (Ni)-Total (mg/kg ww)	0.059	0.069	0.190	0.089	0.123
	Phosphorus (P)-Total (mg/kg ww)	6100	5280	6080	5670	5440
	Potassium (K)-Total (mg/kg ww)	3430	3310	3090	3410	3190
	Rubidium (Rb)-Total (mg/kg ww)	3.05	1.73	2.27	2.35	1.65
	Selenium (Se)-Total (mg/kg ww)	0.176	0.312	0.440	0.440	0.441
	Sodium (Na)-Total (mg/kg ww)	984	938	937	961	925
	Strontium (Sr)-Total (mg/kg ww)	5.85	4.56	7.17	4.55	4.90
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg ww)	0.00319	0.00428	0.00601	0.00417	0.00467
	Tin (Sn)-Total (mg/kg ww)	<0.020	0.023	<0.020	0.024	0.030
	Uranium (U)-Total (mg/kg ww)	0.00330	0.00566	0.0111	0.00748	0.00802
	Vanadium (V)-Total (mg/kg ww)	0.155	0.217	0.635	0.290	0.420
	Zinc (Zn)-Total (mg/kg ww)	20.5	24.9	23.6	21.9	23.5
	Zirconium (Zr)-Total (mg/kg ww)	0.041	0.041	0.104	0.053	0.085

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L2120822-42 Tissue 15-JUN-18 10:28 WQS12B-RB7	L2120822-43 Tissue 15-JUN-18 11:03 WQS12B-RB8	L2120822-44 Tissue 15-JUN-18 11:15 WQS12B-RB9	L2120822-45 Tissue 18-JUN-18 WQS09-RB1	
Grouping	Analyte					
TISSUE						
Physical Tests	% Moisture (%)	78.4	75.9	77.9	77.7	
Metals	Aluminum (Al)-Total (mg/kg ww)	113	50.7	50.8	15.6	
	Antimony (Sb)-Total (mg/kg ww)	0.0046	0.0020	0.0031	<0.0020	
	Arsenic (As)-Total (mg/kg ww)	0.109	0.0732	0.0536	0.0486	
	Barium (Ba)-Total (mg/kg ww)	4.36	2.05	2.68	1.99	
	Beryllium (Be)-Total (mg/kg ww)	0.0023	<0.0020	<0.0020	<0.0020	
	Bismuth (Bi)-Total (mg/kg ww)	<0.0020	<0.0020	<0.0020	<0.0020	
	Boron (B)-Total (mg/kg ww)	<0.20	<0.20	<0.20	<0.20	
	Cadmium (Cd)-Total (mg/kg ww)	0.0820	0.0332	0.155	0.0501	
	Calcium (Ca)-Total (mg/kg ww)	6030	6330	5540	7260	
	Cesium (Cs)-Total (mg/kg ww)	0.0122	0.0056	0.0095	0.0163	
	Chromium (Cr)-Total (mg/kg ww)	0.139	0.064	0.079	0.035	
	Cobalt (Co)-Total (mg/kg ww)	0.139	0.0685	0.169	0.0729	
	Copper (Cu)-Total (mg/kg ww)	1.17	0.938	1.55	1.27	
	Iron (Fe)-Total (mg/kg ww)	224	112	95.1	35.0	
	Lead (Pb)-Total (mg/kg ww)	0.0547	0.0271	0.0328	0.0169	
	Lithium (Li)-Total (mg/kg ww)	<0.10	<0.10	<0.10	<0.10	
	Magnesium (Mg)-Total (mg/kg ww)	359	361	331	376	
	Manganese (Mn)-Total (mg/kg ww)	16.8	18.0	13.4	4.27	
	Mercury (Hg)-Total (mg/kg ww)	0.0145	0.0252	0.0196	0.0135	
	Molybdenum (Mo)-Total (mg/kg ww)	0.0145	0.0204	0.0172	0.0131	
	Nickel (Ni)-Total (mg/kg ww)	0.165	0.088	0.073	<0.040	
	Phosphorus (P)-Total (mg/kg ww)	5420	5910	5330	6590	
	Potassium (K)-Total (mg/kg ww)	3170	3590	3250	3650	
	Rubidium (Rb)-Total (mg/kg ww)	1.49	1.13	1.78	2.01	
	Selenium (Se)-Total (mg/kg ww)	0.352	0.194	0.335	0.766	
	Sodium (Na)-Total (mg/kg ww)	899	889	941	1070	
	Strontium (Sr)-Total (mg/kg ww)	5.10	6.49	4.68	6.31	
	Tellurium (Te)-Total (mg/kg ww)	<0.0040	<0.0040	<0.0040	<0.0040	
	Thallium (Tl)-Total (mg/kg ww)	0.00513	0.00236	0.00430	0.00378	
	Tin (Sn)-Total (mg/kg ww)	0.030	0.030	0.027	0.025	
	Uranium (U)-Total (mg/kg ww)	0.00950	0.00521	0.00683	0.00201	
	Vanadium (V)-Total (mg/kg ww)	0.505	0.235	0.239	0.079	
	Zinc (Zn)-Total (mg/kg ww)	20.4	20.3	26.0	28.7	
	Zirconium (Zr)-Total (mg/kg ww)	0.083	0.057	0.062	0.045	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Copper (Cu)-Total	B	L2120822-21, -22, -23, -24, -25, -26, -27, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40
Duplicate	Aluminum (Al)-Total	DUP-H	L2120822-21, -22, -23, -24, -25, -26, -27, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40
Duplicate	Iron (Fe)-Total	DUP-H	L2120822-21, -22, -23, -24, -25, -26, -27, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40
Duplicate	Vanadium (V)-Total	DUP-H	L2120822-21, -22, -23, -24, -25, -26, -27, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40
Certified Reference Material	Bismuth (Bi)-Total	MES	L2120822-41, -42, -43, -44, -45

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-WET-CVAFS-N-VA	Tissue	Mercury in Tissue by CVAFS (WET)	EPA 200.3, EPA 245.7
This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.			
MET-WET-CCMS-N-VA	Tissue	Metals in Tissue by CRC ICPMS (WET)	EPA 200.3/6020A
This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).			
Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.			
MOISTURE-TISS-VA	Tissue	% Moisture in Tissues	Puget Sound WQ Authority, Apr 1997
This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2120822-COFC

COC Number: 17 - 667878

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JULY 2017 FROM

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Report To Contact and company name below will appear on the final report		Report Format		Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply																									
Company: ERM		Select Report Format: ☒ PDF ☐ EXCEL ☐ EDD (DIGITAL)		Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply																									
Contact: Kirsten Seymour		Quality Control (QC) Report with Report ☐ YES ☐ NO		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td rowspan="3" style="width:10%; text-align: center; vertical-align: middle;">PRIORITY (Business Days)</td> <td style="width:20%;">4 day [P4]</td> <td style="width:10%; text-align: center;">☐</td> <td rowspan="3" style="width:10%; text-align: center; vertical-align: middle;">EMERGENCY</td> <td style="width:20%;">1 Business day [E1]</td> <td style="width:10%; text-align: center;">☐</td> </tr> <tr> <td>3 day [P3]</td> <td style="text-align: center;">☐</td> <td rowspan="2">Same Day, Weekend or Statutory holiday [E0]</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>2 day [P2]</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> </table>		PRIORITY (Business Days)	4 day [P4]	☐	EMERGENCY	1 Business day [E1]	☐	3 day [P3]	☐	Same Day, Weekend or Statutory holiday [E0]	☐	2 day [P2]	☐	☐											
PRIORITY (Business Days)	4 day [P4]	☐	EMERGENCY	1 Business day [E1]	☐																								
	3 day [P3]	☐		Same Day, Weekend or Statutory holiday [E0]	☐																								
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Phone: 250 877 7838		☐ Compare Results to Criteria on Report - provide details below if box checked																											
Company address below will appear on the final report		Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX																											
Street: PO Box 3699		Email 1 or Fax: Kirsten.Seymour@erm.com		Date and Time Required for all E&P TATs:																									
City/Province: Smithers BC		Email 2:		For tests that can not be performed according to the service level selected, you will be contacted.																									
Postal Code: V0J 2N0		Email 3:		Analysis Request																									
Invoice To: Same as Report To ☐ YES ☒ NO		Invoice Distribution		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="12">Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below</td> </tr> <tr> <td colspan="12" style="height: 100px;"> Tissue Metals Number of Containers </td> </tr> </table>		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below												Tissue Metals Number of Containers											
Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																													
Tissue Metals Number of Containers																													
Copy of Invoice with Report ☐ YES ☐ NO		Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX																											
Company: ERM		Email 1 or Fax: erm.canada.payables@erm.com																											
Contact: Accounts Payable		Email 2:																											
Project Information		Oil and Gas Required Fields (client use)																											
ALS Account # / Quote #: 0403488-0108		AFE/Cost Center: PO#:																											
Job #: 0403488-0108		Major/Minor Code: Routing Code:																											
PO / AFE:		Requisitioner:																											
LSD:		Location:																											
ALS Lab Work Order # (lab use only)		ALS Contact: Amber Springer Sampler: KS																											
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type																									
	WQSO9 - RB5	20-Jun-18	10:59	tissue	☒																								
	WQSO9 - RB6	20-Jun-18	11:10	tissue	☒																								
	WQSO9 - RB7	20-Jun-18	11:20	tissue	☒																								
	WQS11 - RB1	14-Jun-18	15:02	tissue	☒																								
	WQS11 - RB3	14-Jun-18	15:03	tissue	☒																								
	WQS11 - RB4	14-Jun-18	15:08	tissue	☒																								
	WQS11 - RB5	14-Jun-18	15:12	tissue	☒																								
	WQS11 - RB6	14-Jun-18	15:13	tissue	☒																								
	WQS11 - RB7	14-Jun-18	15:20	tissue	☒																								
	WQS11 - RB8	14-Jun-18	15:21	tissue	☒																								
	WQS11 - RB9	14-Jun-18	15:26	tissue	☒																								
	WQS11 - RB10	14-Jun-18	15:28	tissue	☒																								
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)																									
Are samples taken from a Regulated DW System? ☐ YES ☐ NO				Frozen ☐ SIF Observations Yes ☐ No ☐																									
Are samples for human drinking water use? ☐ YES ☐ NO				Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐																									
				Cooling Initiated ☐																									
				INITIAL COOLER TEMPERATURES °C																									
				FINAL COOLER TEMPERATURES °C																									
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)																									
Released by: Alida Carroll Date: June 27/18 Time:		Received by: Date: Time:		Received by: RK Date: 28 June 18 Time: 11:20am																									

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2120822-COFC

COC Number: 15 - 589504

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Report To Contact and company name below will appear on the final report		Report Format Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)		all E&P TATs with your AM - surcharges will apply	
Company: ERM		Quality Control (QC) Report with Report ☐ YES ☐ NO		Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply	
Contact: Kirsten Seymour		☐ Compare Results to Criteria on Report - provide details below if box checked		4 day [P4] ☐ 1 Business day [E1] ☐	
Phone: 50-877-7828		Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX		3 day [P3] ☐ Same Day, Weekend or Statutory holiday [E0] ☐	
Company address below will appear on the final report		Email 1 or Fax: Kirsten.Seymour@erm.com		2 day [P2] ☐	
Street: PO Box 3669		Email 2		and Time Required for all E&P TATs:	
City/Province: Smithers BC		Email 3		For tests that can not be performed according to the service level selected, you will be contacted.	
Postal Code: V5J 2N0				Analysis Request	
Invoice To		Invoice Distribution		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Same as Report To ☐ YES ☒ NO		Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX			
Copy of Invoice with Report ☐ YES ☐ NO		Email 1 or Fax: erm.canadapayables@erm.com			
Company: ERM		Email 2			
Contact: Accounts Payable					
Project Information		Oil and Gas Required Fields (client use)			
ALS Account # / Quote #		AFE/Cost Center:			
Job #: 0403488-0108		Major/Minor Code:			
PO / AFE:		Routing Code:			
LSD:		Requisitioner:			
ALS Lab Work Order # (lab use only)		Location:			
ALS Contact: Amber Springer		Sampler: KS			
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	
	WQSO1-RB11	12-Jun-18	11:30	TISSUE	✓
	WQSO1-RB12	12-Jun-18	11:31	TISSUE	✓
	WQSO1-RB13	12-Jun-18	11:35	TISSUE	✓
	WQSO1-RB14	12-Jun-18	11:38	TISSUE	✓
	WQSO1-RB15	12-Jun-18	11:43	TISSUE	✓
	WQSO1-RB16	12-Jun-18	11:46	TISSUE	✓
	WQSO2-RB1	19-Jun-18	10:02	TISSUE	✓
	WQSO2-RB2	19-Jun-18	10:03	TISSUE	✓
	WQSO2-RB3	19-Jun-18	10:10	TISSUE	✓
	WQSO2-RB4	19-Jun-18	10:12	TISSUE	✓
	WQSO2-RB5	19-Jun-18	10:15	TISSUE	✓
	WQSO2-RB6	19-Jun-18	10:23	TISSUE	✓
Drinking Water (DW) Samples (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)	
Are samples taken from a Regulated DW System? ☐ YES ☐ NO				Frozen ☐ SIF Observations Yes ☐ No ☐	
Are samples for human drinking water use? ☐ YES ☐ NO				Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐	
				Cooling Initiated ☐	
				INITIAL COOLER TEMPERATURES °C	
				FINAL COOLER TEMPERATURES °C	
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)	
Released by: Alivia Cant	Date: June 27/18	Time:	Received by:	Date: 28 June 18	Time: 11:20 am

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

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