

Appendix 1 - QUALITY CONTROL - Blanks



Water

		Result	Target	Units	DL	ALSQC#	Method
Total Metals							
Vanadium	T-V	<0.030	<0.030	mg/L	0.03	21666	a
Zinc	T-Zn	<0.0010	<0.0010	mg/L	0.001	21631	b
Zinc	T-Zn	<0.0010	<0.0010	mg/L	0.001	21632	b
Zinc	T-Zn	<0.0050	<0.0050	mg/L	0.005	21642	a
Zinc	T-Zn	<0.0050	<0.0050	mg/L	0.005	21643	a
Zinc	T-Zn	<0.0010	<0.0010	mg/L	0.001	21654	b
Zinc	T-Zn	<0.0010	<0.0010	mg/L	0.001	21655	b
Zinc	T-Zn	<0.0050	<0.0050	mg/L	0.005	21665	a
Zinc	T-Zn	<0.0050	<0.0050	mg/L	0.005	21666	a
Dissolved Metals							
Aluminum	D-Al	<0.0010	<0.0010	mg/L	0.001	21638	b
Aluminum	D-Al	<0.0010	<0.0010	mg/L	0.001	21639	b
Aluminum	D-Al	<0.20	<0.20	mg/L	0.2	21640	a
Aluminum	D-Al	<0.20	<0.20	mg/L	0.2	21641	a
Aluminum	D-Al	<0.0010	<0.0010	mg/L	0.001	21661	b
Aluminum	D-Al	<0.0010	<0.0010	mg/L	0.001	21662	b
Aluminum	D-Al	<0.20	<0.20	mg/L	0.2	21663	a
Aluminum	D-Al	<0.20	<0.20	mg/L	0.2	21664	a
Antimony	D-Sb	<0.00010	<0.00010	mg/L	0.0001	21638	b
Antimony	D-Sb	<0.00010	<0.00010	mg/L	0.0001	21639	b
Antimony	D-Sb	<0.20	<0.20	mg/L	0.2	21640	a
Antimony	D-Sb	<0.20	<0.20	mg/L	0.2	21641	a
Antimony	D-Sb	<0.00010	<0.00010	mg/L	0.0001	21661	b
Antimony	D-Sb	<0.00010	<0.00010	mg/L	0.0001	21662	b
Antimony	D-Sb	<0.20	<0.20	mg/L	0.2	21663	a
Antimony	D-Sb	<0.20	<0.20	mg/L	0.2	21664	a
Arsenic	D-As	<0.00010	<0.00010	mg/L	0.0001	21638	b
Arsenic	D-As	<0.00010	<0.00010	mg/L	0.0001	21639	b
Arsenic	D-As	<0.20	<0.20	mg/L	0.2	21640	a
Arsenic	D-As	<0.20	<0.20	mg/L	0.2	21641	a
Arsenic	D-As	<0.00010	<0.00010	mg/L	0.0001	21661	b
Arsenic	D-As	<0.00010	<0.00010	mg/L	0.0001	21662	b
Arsenic	D-As	<0.20	<0.20	mg/L	0.2	21663	a
Arsenic	D-As	<0.20	<0.20	mg/L	0.2	21664	a
Barium	D-Ba	<0.000050	<0.000050	mg/L	0.00005	21638	b

Methods:

a = ICPOES

b = ICPMS

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		Result	Target	Units	DL	ALSQC#	Method
Dissolved Metals							
Barium	D-Ba	<0.000050	<0.000050	mg/L	0.00005	21639	a
Barium	D-Ba	<0.010	<0.010	mg/L	0.01	21640	b
Barium	D-Ba	<0.010	<0.010	mg/L	0.01	21641	b
Barium	D-Ba	<0.000050	<0.000050	mg/L	0.00005	21661	a
Barium	D-Ba	<0.000050	<0.000050	mg/L	0.00005	21662	a
Barium	D-Ba	<0.010	<0.010	mg/L	0.01	21663	b
Barium	D-Ba	<0.010	<0.010	mg/L	0.01	21664	b
Beryllium	D-Be	<0.00050	<0.00050	mg/L	0.0005	21638	a
Beryllium	D-Be	<0.00050	<0.00050	mg/L	0.0005	21639	a
Beryllium	D-Be	<0.0050	<0.0050	mg/L	0.005	21640	b
Beryllium	D-Be	<0.0050	<0.0050	mg/L	0.005	21641	b
Beryllium	D-Be	<0.00050	<0.00050	mg/L	0.0005	21661	a
Beryllium	D-Be	<0.00050	<0.00050	mg/L	0.0005	21662	a
Beryllium	D-Be	<0.0050	<0.0050	mg/L	0.005	21663	b
Beryllium	D-Be	<0.0050	<0.0050	mg/L	0.005	21664	b
Bismuth	D-Bi	<0.00050	<0.00050	mg/L	0.0005	21638	a
Bismuth	D-Bi	<0.00050	<0.00050	mg/L	0.0005	21639	a
Bismuth	D-Bi	<0.10	<0.10	mg/L	0.1	21640	b
Bismuth	D-Bi	<0.10	<0.10	mg/L	0.1	21641	b
Bismuth	D-Bi	<0.00050	<0.00050	mg/L	0.0005	21661	a
Bismuth	D-Bi	<0.00050	<0.00050	mg/L	0.0005	21662	a
Bismuth	D-Bi	<0.10	<0.10	mg/L	0.1	21663	b
Bismuth	D-Bi	<0.10	<0.10	mg/L	0.1	21664	b
Boron	D-B	<0.010	<0.010	mg/L	0.01	21638	a
Boron	D-B	<0.010	<0.010	mg/L	0.01	21639	a
Boron	D-B	<0.10	<0.10	mg/L	0.1	21640	b
Boron	D-B	<0.10	<0.10	mg/L	0.1	21641	b
Boron	D-B	<0.010	<0.010	mg/L	0.01	21661	a
Boron	D-B	<0.010	<0.010	mg/L	0.01	21662	a
Boron	D-B	<0.10	<0.10	mg/L	0.1	21663	b
Boron	D-B	<0.10	<0.10	mg/L	0.1	21664	b
Cadmium	D-Cd	<0.000050	<0.000050	mg/L	0.00005	21638	a
Cadmium	D-Cd	<0.000050	<0.000050	mg/L	0.00005	21639	a
Cadmium	D-Cd	<0.010	<0.010	mg/L	0.01	21640	b
Cadmium	D-Cd	<0.010	<0.010	mg/L	0.01	21641	b

Methods:

a = ICPMS

b = ICPOES

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		Result	Target	Units	DL	ALSQC#	Method
Dissolved Metals							
Cadmium	D-Cd	<0.000050	<0.000050	mg/L	0.00005	21661	a
Cadmium	D-Cd	<0.000050	<0.000050	mg/L	0.00005	21662	a
Cadmium	D-Cd	<0.010	<0.010	mg/L	0.01	21663	b
Cadmium	D-Cd	<0.010	<0.010	mg/L	0.01	21664	b
Calcium	D-Ca	<0.020	<0.020	mg/L	0.02	21638	a
Calcium	D-Ca	<0.020	<0.020	mg/L	0.02	21639	a
Calcium	D-Ca	<0.050	<0.050	mg/L	0.05	21640	b
Calcium	D-Ca	<0.050	<0.050	mg/L	0.05	21641	b
Calcium	D-Ca	<0.020	<0.020	mg/L	0.02	21661	a
Calcium	D-Ca	<0.020	<0.020	mg/L	0.02	21662	a
Calcium	D-Ca	<0.050	<0.050	mg/L	0.05	21663	b
Calcium	D-Ca	<0.050	<0.050	mg/L	0.05	21664	b
Chromium	D-Cr	<0.00050	<0.00050	mg/L	0.0005	21638	a
Chromium	D-Cr	<0.00050	<0.00050	mg/L	0.0005	21639	a
Chromium	D-Cr	<0.010	<0.010	mg/L	0.01	21640	b
Chromium	D-Cr	<0.010	<0.010	mg/L	0.01	21641	b
Chromium	D-Cr	<0.00050	<0.00050	mg/L	0.0005	21661	a
Chromium	D-Cr	<0.00050	<0.00050	mg/L	0.0005	21662	a
Chromium	D-Cr	<0.010	<0.010	mg/L	0.01	21663	b
Chromium	D-Cr	<0.010	<0.010	mg/L	0.01	21664	b
Cobalt	D-Co	<0.00010	<0.00010	mg/L	0.0001	21638	a
Cobalt	D-Co	<0.00010	<0.00010	mg/L	0.0001	21639	a
Cobalt	D-Co	<0.010	<0.010	mg/L	0.01	21640	b
Cobalt	D-Co	<0.010	<0.010	mg/L	0.01	21641	b
Cobalt	D-Co	<0.00010	<0.00010	mg/L	0.0001	21661	a
Cobalt	D-Co	<0.00010	<0.00010	mg/L	0.0001	21662	a
Cobalt	D-Co	<0.010	<0.010	mg/L	0.01	21663	b
Cobalt	D-Co	<0.010	<0.010	mg/L	0.01	21664	b
Copper	D-Cu	<0.00010	<0.00010	mg/L	0.0001	21638	a
Copper	D-Cu	<0.00010	<0.00010	mg/L	0.0001	21639	a
Copper	D-Cu	<0.010	<0.010	mg/L	0.01	21640	b
Copper	D-Cu	<0.010	<0.010	mg/L	0.01	21641	b
Copper	D-Cu	<0.00010	<0.00010	mg/L	0.0001	21661	a
Copper	D-Cu	<0.00010	<0.00010	mg/L	0.0001	21662	a
Copper	D-Cu	<0.010	<0.010	mg/L	0.01	21663	b

Methods:

a = ICPMS

b = ICPOES

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Water

		Result	Target	Units	DL	ALSQC#	Method
Dissolved Metals							
Copper	D-Cu	<0.010	<0.010	mg/L	0.01	21664	a
Iron	D-Fe	<0.030	<0.030	mg/L	0.03	21640	a
Iron	D-Fe	<0.030	<0.030	mg/L	0.03	21641	a
Iron	D-Fe	<0.030	<0.030	mg/L	0.03	21663	a
Iron	D-Fe	<0.030	<0.030	mg/L	0.03	21664	a
Lead	D-Pb	<0.000050	<0.000050	mg/L	0.00005	21638	b
Lead	D-Pb	<0.000050	<0.000050	mg/L	0.00005	21639	b
Lead	D-Pb	<0.050	<0.050	mg/L	0.05	21640	a
Lead	D-Pb	<0.050	<0.050	mg/L	0.05	21641	a
Lead	D-Pb	<0.000050	<0.000050	mg/L	0.00005	21661	b
Lead	D-Pb	<0.000050	<0.000050	mg/L	0.00005	21662	b
Lead	D-Pb	<0.050	<0.050	mg/L	0.05	21663	a
Lead	D-Pb	<0.050	<0.050	mg/L	0.05	21664	a
Lithium	D-Li	<0.0050	<0.0050	mg/L	0.005	21638	b
Lithium	D-Li	<0.0050	<0.0050	mg/L	0.005	21639	b
Lithium	D-Li	<0.010	<0.010	mg/L	0.01	21640	a
Lithium	D-Li	<0.010	<0.010	mg/L	0.01	21641	a
Lithium	D-Li	<0.0050	<0.0050	mg/L	0.005	21661	b
Lithium	D-Li	<0.0050	<0.0050	mg/L	0.005	21662	b
Lithium	D-Li	<0.010	<0.010	mg/L	0.01	21663	a
Lithium	D-Li	<0.010	<0.010	mg/L	0.01	21664	a
Magnesium	D-Mg	<0.0050	<0.0050	mg/L	0.005	21638	b
Magnesium	D-Mg	<0.0050	<0.0050	mg/L	0.005	21639	b
Magnesium	D-Mg	<0.10	<0.10	mg/L	0.1	21640	a
Magnesium	D-Mg	<0.10	<0.10	mg/L	0.1	21641	a
Magnesium	D-Mg	<0.0050	<0.0050	mg/L	0.005	21661	b
Magnesium	D-Mg	<0.0050	<0.0050	mg/L	0.005	21662	b
Magnesium	D-Mg	<0.10	<0.10	mg/L	0.1	21663	a
Magnesium	D-Mg	<0.10	<0.10	mg/L	0.1	21664	a
Manganese	D-Mn	<0.000050	<0.000050	mg/L	0.00005	21638	b
Manganese	D-Mn	<0.000050	<0.000050	mg/L	0.00005	21639	b
Manganese	D-Mn	<0.0050	<0.0050	mg/L	0.005	21640	a
Manganese	D-Mn	<0.0050	<0.0050	mg/L	0.005	21641	a
Manganese	D-Mn	<0.000050	<0.000050	mg/L	0.00005	21661	b
Manganese	D-Mn	<0.000050	<0.000050	mg/L	0.00005	21662	b

Methods:

a = ICPOES

b = ICPMS

Appendix 1 - QUALITY CONTROL - Blanks



Water

		Result	Target	Units	DL	ALSQC#	Method
Dissolved Metals							
Manganese	D-Mn	<0.0050	<0.0050	mg/L	0.005	21663	a
Manganese	D-Mn	<0.0050	<0.0050	mg/L	0.005	21664	a
Molybdenum	D-Mo	<0.000050	<0.000050	mg/L	0.00005	21638	b
Molybdenum	D-Mo	<0.000050	<0.000050	mg/L	0.00005	21639	b
Molybdenum	D-Mo	<0.030	<0.030	mg/L	0.03	21640	a
Molybdenum	D-Mo	<0.030	<0.030	mg/L	0.03	21641	a
Molybdenum	D-Mo	<0.000050	<0.000050	mg/L	0.00005	21661	b
Molybdenum	D-Mo	<0.000050	<0.000050	mg/L	0.00005	21662	b
Molybdenum	D-Mo	<0.030	<0.030	mg/L	0.03	21663	a
Molybdenum	D-Mo	<0.030	<0.030	mg/L	0.03	21664	a
Nickel	D-Ni	<0.00050	<0.00050	mg/L	0.0005	21638	b
Nickel	D-Ni	<0.00050	<0.00050	mg/L	0.0005	21639	b
Nickel	D-Ni	<0.050	<0.050	mg/L	0.05	21640	a
Nickel	D-Ni	<0.050	<0.050	mg/L	0.05	21641	a
Nickel	D-Ni	<0.00050	<0.00050	mg/L	0.0005	21661	b
Nickel	D-Ni	<0.00050	<0.00050	mg/L	0.0005	21662	b
Nickel	D-Ni	<0.050	<0.050	mg/L	0.05	21663	a
Nickel	D-Ni	<0.050	<0.050	mg/L	0.05	21664	a
Phosphorus	D-P	<0.30	<0.30	mg/L	0.3	21640	a
Phosphorus	D-P	<0.30	<0.30	mg/L	0.3	21641	a
Phosphorus	D-P	<0.30	<0.30	mg/L	0.3	21663	a
Phosphorus	D-P	<0.30	<0.30	mg/L	0.3	21664	a
Potassium	D-K	<0.050	<0.050	mg/L	0.05	21638	b
Potassium	D-K	<0.050	<0.050	mg/L	0.05	21639	b
Potassium	D-K	<2.0	<2.0	mg/L	2	21640	a
Potassium	D-K	<2.0	<2.0	mg/L	2	21641	a
Potassium	D-K	<0.050	<0.050	mg/L	0.05	21661	b
Potassium	D-K	<0.050	<0.050	mg/L	0.05	21662	b
Potassium	D-K	<2.0	<2.0	mg/L	2	21663	a
Potassium	D-K	<2.0	<2.0	mg/L	2	21664	a
Selenium	D-Se	<0.00050	<0.00050	mg/L	0.0005	21638	b
Selenium	D-Se	<0.00050	<0.00050	mg/L	0.0005	21639	b
Selenium	D-Se	<0.20	<0.20	mg/L	0.2	21640	a
Selenium	D-Se	<0.20	<0.20	mg/L	0.2	21641	a
Selenium	D-Se	<0.00050	<0.00050	mg/L	0.0005	21661	b

Methods:

a = ICPOES

b = ICPMS

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Water

		Result	Target	Units	DL	ALSQC#	Method
Dissolved Metals							
Selenium	D-Se	<0.00050	<0.00050	mg/L	0.0005	21662	a
Selenium	D-Se	<0.20	<0.20	mg/L	0.2	21663	b
Selenium	D-Se	<0.20	<0.20	mg/L	0.2	21664	b
Silicon	D-Si	<0.050	<0.050	mg/L	0.05	21640	b
Silicon	D-Si	<0.050	<0.050	mg/L	0.05	21641	b
Silicon	D-Si	<0.050	<0.050	mg/L	0.05	21663	b
Silicon	D-Si	<0.050	<0.050	mg/L	0.05	21664	b
Silver	D-Ag	<0.000010	<0.000010	mg/L	0.00001	21638	a
Silver	D-Ag	<0.000010	<0.000010	mg/L	0.00001	21639	a
Silver	D-Ag	<0.010	<0.010	mg/L	0.01	21640	b
Silver	D-Ag	<0.010	<0.010	mg/L	0.01	21641	b
Silver	D-Ag	<0.000010	<0.000010	mg/L	0.00001	21661	a
Silver	D-Ag	<0.000010	<0.000010	mg/L	0.00001	21662	a
Silver	D-Ag	<0.010	<0.010	mg/L	0.01	21663	b
Silver	D-Ag	<0.010	<0.010	mg/L	0.01	21664	b
Sodium	D-Na	<0.010	<0.010	mg/L	0.01	21638	a
Sodium	D-Na	<0.010	<0.010	mg/L	0.01	21639	a
Sodium	D-Na	<2.0	<2.0	mg/L	2	21640	b
Sodium	D-Na	<2.0	<2.0	mg/L	2	21641	b
Sodium	D-Na	<0.010	<0.010	mg/L	0.01	21661	a
Sodium	D-Na	<0.010	<0.010	mg/L	0.01	21662	a
Sodium	D-Na	<2.0	<2.0	mg/L	2	21663	b
Sodium	D-Na	<2.0	<2.0	mg/L	2	21664	b
Strontium	D-Sr	<0.00010	<0.00010	mg/L	0.0001	21638	a
Strontium	D-Sr	<0.00010	<0.00010	mg/L	0.0001	21639	a
Strontium	D-Sr	<0.0050	<0.0050	mg/L	0.005	21640	b
Strontium	D-Sr	<0.0050	<0.0050	mg/L	0.005	21641	b
Strontium	D-Sr	<0.00010	<0.00010	mg/L	0.0001	21661	a
Strontium	D-Sr	<0.00010	<0.00010	mg/L	0.0001	21662	a
Strontium	D-Sr	<0.0050	<0.0050	mg/L	0.005	21663	b
Strontium	D-Sr	<0.0050	<0.0050	mg/L	0.005	21664	b
Thallium	D-Tl	<0.00010	<0.00010	mg/L	0.0001	21638	a
Thallium	D-Tl	<0.00010	<0.00010	mg/L	0.0001	21639	a
Thallium	D-Tl	<0.20	<0.20	mg/L	0.2	21640	b
Thallium	D-Tl	<0.20	<0.20	mg/L	0.2	21641	b

Methods:

a = ICPMS

b = ICPOES

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Water

		Result	Target	Units	DL	ALSQC#	Method
Dissolved Metals							
Thallium	D-Tl	<0.00010	<0.00010	mg/L	0.0001	21661	a
Thallium	D-Tl	<0.00010	<0.00010	mg/L	0.0001	21662	a
Thallium	D-Tl	<0.20	<0.20	mg/L	0.2	21663	b
Thallium	D-Tl	<0.20	<0.20	mg/L	0.2	21664	b
Tin	D-Sn	<0.00010	<0.00010	mg/L	0.0001	21638	a
Tin	D-Sn	<0.00010	<0.00010	mg/L	0.0001	21639	a
Tin	D-Sn	<0.030	<0.030	mg/L	0.03	21640	b
Tin	D-Sn	<0.030	<0.030	mg/L	0.03	21641	b
Tin	D-Sn	<0.00010	<0.00010	mg/L	0.0001	21661	a
Tin	D-Sn	<0.00010	<0.00010	mg/L	0.0001	21662	a
Tin	D-Sn	<0.030	<0.030	mg/L	0.03	21663	b
Tin	D-Sn	<0.030	<0.030	mg/L	0.03	21664	b
Titanium	D-Ti	<0.010	<0.010	mg/L	0.01	21640	b
Titanium	D-Ti	<0.010	<0.010	mg/L	0.01	21641	b
Titanium	D-Ti	<0.010	<0.010	mg/L	0.01	21663	b
Titanium	D-Ti	<0.010	<0.010	mg/L	0.01	21664	b
Uranium	D-U	<0.000010	<0.000010	mg/L	0.00001	21638	a
Uranium	D-U	<0.000010	<0.000010	mg/L	0.00001	21639	a
Uranium	D-U	<0.000010	<0.000010	mg/L	0.00001	21661	a
Uranium	D-U	<0.000010	<0.000010	mg/L	0.00001	21662	a
Vanadium	D-V	<0.0010	<0.0010	mg/L	0.001	21638	a
Vanadium	D-V	<0.0010	<0.0010	mg/L	0.001	21639	a
Vanadium	D-V	<0.030	<0.030	mg/L	0.03	21640	b
Vanadium	D-V	<0.030	<0.030	mg/L	0.03	21641	b
Vanadium	D-V	<0.0010	<0.0010	mg/L	0.001	21661	a
Vanadium	D-V	<0.0010	<0.0010	mg/L	0.001	21662	a
Vanadium	D-V	<0.030	<0.030	mg/L	0.03	21663	b
Vanadium	D-V	<0.030	<0.030	mg/L	0.03	21664	b
Zinc	D-Zn	<0.0010	<0.0010	mg/L	0.001	21638	a
Zinc	D-Zn	<0.0010	<0.0010	mg/L	0.001	21639	a
Zinc	D-Zn	<0.0050	<0.0050	mg/L	0.005	21640	b
Zinc	D-Zn	<0.0050	<0.0050	mg/L	0.005	21641	b
Zinc	D-Zn	<0.0010	<0.0010	mg/L	0.001	21661	a
Zinc	D-Zn	<0.0010	<0.0010	mg/L	0.001	21662	a
Zinc	D-Zn	<0.0050	<0.0050	mg/L	0.005	21663	b

Methods:

a = ICPMS

b = ICPOES

File No. R3016(1)

Appendix 1 - QUALITY CONTROL - Blanks



Water

		Result	Target	Units	DL	ALSQC#	Method
Dissolved Metals							
Zinc	D-Zn	<0.0050	<0.0050	mg/L	0.005	21664	a
Organic Parameters							
Total Carbon	C	<0.5	<0.5	mg/L	0.5	21635	b
Total Carbon	C	<0.5	<0.5	mg/L	0.5	21644	b
Total Carbon	C	<0.5	<0.5	mg/L	0.5	21658	b
Total Carbon	C	<0.5	<0.5	mg/L	0.5	21667	b
Total Inorganic Carbon	C	<0.5	<0.5	mg/L	0.5	21635	b
Total Inorganic Carbon	C	<0.5	<0.5	mg/L	0.5	21644	b
Total Inorganic Carbon	C	<0.5	<0.5	mg/L	0.5	21658	b
Total Inorganic Carbon	C	<0.5	<0.5	mg/L	0.5	21667	b
Total Organic Carbon	C	<0.5	<0.5	mg/L	0.5	21635	b
Total Organic Carbon	C	<0.5	<0.5	mg/L	0.5	21644	b
Total Organic Carbon	C	<0.5	<0.5	mg/L	0.5	21658	b
Total Organic Carbon	C	<0.5	<0.5	mg/L	0.5	21667	b

Methods:

a = ICPOES

b = IR

Appendix 2 - METHODOLOGY



Outlines of the methodologies utilized for the analysis of the samples submitted are as follows

Conductivity in Water

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

Recommended Holding Time:

Sample: 28 days

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

Conventional Parameters in Water

These analyses are carried out in accordance with procedures described in "Methods for Chemical Analysis of Water and Wastes" (USEPA), "Manual for the Chemical Analysis of Water, Wastewaters, Sediments and Biological Tissues" (BCMOE), and/or "Standard Methods for the Examination of Water and Wastewater" (APHA). Further details are available on request.

pH in Water

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.

Recommended Holding Time:

Sample: 2 hours

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

Solids in Water

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total dissolved solids (TDS) and total suspended solids (TSS) 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 is determined by drying the filter at 104 degrees celsius. Total solids are determined by evaporating a sample to dryness at 104 degrees celsius. Fixed and volatile solids are determined by igniting a dried sample residue at 550 degrees celsius.

Recommended Holding Time:

Sample: 7 days

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

Appendix 2 - METHODOLOGY - Continued



Turbidity of Water

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

Recommended Holding Time:

Sample: 2 days

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

Alkalinity in Water by Titration

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.

Recommended Holding Time:

Sample: 14 days

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

Dissolved Anions in Water by Ion Chromatography

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG17 anion exchange column with a sodium carbonate and sodium bicarbonate eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

Recommended Holding Time:

Sample: 28 days (bromide, chloride, fluoride, sulphate)

Sample: 2 days (nitrate, nitrite)

Reference: APHA and EPA

For more detail see ALS Environmental "Collection & Sampling Guide"

Ammonia in Water by Colourimetry

This analysis is carried out, on unpreserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

Recommended Holding Time:

Appendix 2 - METHODOLOGY - Continued



Sample: 1 day

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

Total Kjeldahl Nitrogen in Water

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

Recommended Holding Time:

Sample: 28 days

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

Phosphate in Water

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

Recommended Holding Time:

Sample: 2 days

Reference: EPA

For more detail see ALS Environmental "Collection & Sampling Guide"

Metals in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotplate or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by atomic absorption/emission spectrophotometry (EPA Method 7000 series), inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B), and/or inductively coupled plasma - mass spectrometry (EPA Method 6020).

Recommended Holding Time:

Sample: 6 months

Reference: EPA

For more detail see: ALS "Collection & Sampling Guide"



Mercury in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

Recommended Holding Time:

Sample: 28 days

Reference: EPA

For more detail see ALS Environmental "Collection & Sampling Guide"

Carbon in Water

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". All fractions of carbon are determined by the combustion-infrared method. Total carbon includes organic carbon (covalently bonded in organic molecules) and inorganic carbon (carbonate, bicarbonate and dissolved carbon dioxide). Total organic carbon is the calculated difference between the total carbon and the inorganic carbon determination. Dissolved carbon fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

Recommended Holding Time:

Sample: 28 days

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

Results contained within this report relate only to the samples as submitted.

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End of Report





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#2 - 8820 100th Street, Fort St. John, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286

SEND REPORT TO:

CLIENT: Coastal Lee Ltd. ADDRESS: 2251-2nd Ave POSTAL CODE: V1A 5W1
CITY: Whitehorse PROV: YT
TELEPHONE: 633-6474 FAX: 633-6321 CONTACT:
PROJECT NAME & NO.: Hackett River-50548 SAMPLER: C. Dwyer
QUOTE NO.: PO NO.: PO CONTACT: B. Chene

REPORT FORMAT: ☒ HARD COPY ☐ EMAIL - ADDRESS: lgan@regentviro.com
☐ FAX ☐ EXCEL ☐ PDF ☐ OTHER:

CHAIN OF CUSTODY FORM

ANALYSIS REQUESTED:

FOR LAB USE ONLY	SAMPLE IDENTIFICATION		DATE / TIME COLLECTED		MATRIX	ANALYSIS REQUESTED										NOTES (sample specific comments, due dates, etc.)
			YYYYMMDD	TIME												
11	Boot Lake		2005/07/06	13:30	Water											
12	Boot Lake Outlet		"	14:00												
13	Joe Lake Outlet		"	14:55												
14	Cigar Lake		"	15:05												
15	H-River Downstream		"	16:00												
16	Camp Creek		"	16:20												
17	H-River Upstream		"	17:00												
18	Boot Lake Outlet		2005/07/07	8:30												
19	Banana Lake		"	8:45												
20	Banana Replicate		"	8:55												

TURN AROUND REQUIRED: ☒ ROUTINE ☐ RUSH - SPECIFY DATE: _____ (surcharge may apply)

SEND INVOICE TO: ☒ SAME AS REPORT ☐ INVOICE FORMAT: ☐ HARD COPY ☐ PDF ☐ FAX
☐ DIFFERENT FROM REPORT (provide details below)

SPECIAL INSTRUCTIONS:

please do a lab duplicate analysis
2 samples
re-beds - use Aquatic life

RELINQUISHED BY:		RECEIVED BY:	
DATE	TIME	DATE	TIME
RELINQUISHED BY:		RECEIVED BY:	
DATE	TIME	DATE	TIME

FOR LAB USE ONLY

COOLER SEAL INTACT? ☐ YES ☐ NO ☐ N/A

SAMPLE TEMPERATURE: _____ °C

FROZEN? ☐ YES ☐ NO

COOLING METHOD? ☐ ICEPACKS ☐ ICE ☐ NONE

REPORT COPY

SEE WHITEPAPER FOR SOURCE VERSION 07



CHAIN OF CUSTODY FORM

SEND REPORT TO:

CLIENT: Geotek Inc Ltd PROV: YT POSTAL CODE: X1A 5W1
ADDRESS: 2251-2nd Ave CITY: Whitehorse TELEPHONE: 633-6474 FAX: 633-6321 CONTACT: _____
PROJECT NAME & NO.: Thacker Bay - 50508 SAMPLER: C. Davis ALS CONTACT: B. Clever
QUOTE NO.: _____ PO NO.: _____
REPORT FORMAT: ☒ HARDCOPY ☐ EMAIL - ADDRESS: harry.geotek@geotek.ca
☐ FAX ☐ EXCEL ☐ PDF ☐ OTHER:

SAMPLE COLLECTION

DATE / TIME COLLECTED	TIME
YYYY-MM-DD	

MATRIX

FOR LAB USE ONLY

ANALYSIS REQUESTED:

NOTES (sample specific comments, due dates, etc.)

URN AROUND REQUIRED: ☒ ROUTINE ☐ RUSH - SPECIFY DATE: _____ (surcharge may apply)

END INVOICE TO: ☒ SAME AS REPORT ☐ HARD COPY ☐ PDF ☐ FAX

SPECIAL INSTRUCTIONS:

Please give a full duplicate analysis on 2 samples

FOR LAB USE ONLY

COOLER SEAL INTACT?

SAMPLE TEMPERATURE: °C

COOLING METHOD?

☐ NONE

REPORT COPY

SEE WHITEPAPER FOR SOURCE VERSIONS 07

