



EDI ENVIRONMENTAL DYNAMICS INC.
ATTN: Lyndsay Doetzel
2195 - 2nd Ave
Whitehorse YT Y1A 3T8

Date Received: 09-FEB-17
Report Date: 24-FEB-17 15:00 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1889357
Project P.O. #: NOT SUBMITTED
Job Reference: MOUNT NANSEN 16-Y-0089
C of C Numbers:
Legal Site Desc:

Comments: Fish toxicity analysis was subcontracted to Nautilus Environmental located in Burnaby, BC. Refer to their report attached for detail.

Can Dang
Senior 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 A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1889357-1	L1889357-2	L1889357-3	L1889357-4	L1889357-5
					Water	Water	Water	Water	Water
					08-FEB-17	07-FEB-17	07-FEB-17	08-FEB-17	08-FEB-17
					09:30	17:55	18:10	12:35	11:10
					WQ-DC-DX + 105	WQ-TP	WQ-TP-R	WQ-SEEP	WQ-DC-U
Grouping	Analyte								
WATER									
Physical Tests	Colour, True (CU)								
	Conductivity (uS/cm)	1110	2860	2860	1600	1480			
	Hardness (as CaCO3) (mg/L)	653	1880	1890	877	797			
	pH (pH)	7.80	7.89	7.90	7.48	7.67			
	Total Suspended Solids (mg/L)	<3.0	5.6	60.7	33.8	34.9			
	Total Dissolved Solids (mg/L)								
	TDS (Calculated) (mg/L)	792	2690	2490	1240	1110			
	Turbidity (NTU)								
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	269	322	320	282	280			
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0			
	Alkalinity, Total (as CaCO3) (mg/L)	269	322	320	282	280			
	Ammonia, Total (as N) (mg/L)	0.0221	0.985	0.996	4.26	3.90			
	Bromide (Br) (mg/L)	<0.25 ^{DLDS}	<1.0 ^{DLDS}	<1.0 ^{DLDS}	<0.25 ^{DLDS}	<0.25 ^{DLDS}			
	Chloride (Cl) (mg/L)	<2.5 ^{DLDS}	<10 ^{DLDS}	<10 ^{DLDS}	<2.5 ^{DLDS}	<2.5 ^{DLDS}			
	Fluoride (F) (mg/L)	0.17	0.41	<0.40 ^{DLDS}	<0.10 ^{DLDS}	0.11			
	Nitrate (as N) (mg/L)	<0.025 ^{DLDS}	<0.10 ^{DLDS}	<0.10 ^{DLDS}	0.816	0.366			
	Nitrite (as N) (mg/L)	<0.0050 ^{DLDS}	<0.020 ^{DLDS}	<0.020 ^{DLDS}	0.0280	0.0172			
	Sulfate (SO4) (mg/L)	397	1730	1530	687	610			
	Anion Sum (meq/L)	13.6	42.5	38.3	20.0	18.3			
	Cation Sum (meq/L)	13.4	40.6	40.8	20.5	18.0			
	Cation - Anion Balance (%)	-0.7	-2.3	3.1	1.3	-0.8			
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0112			
	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	0.0176	0.0305			
	Cyanate (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20			
	Thiocyanate (SCN) (mg/L)	<0.50	<2.5 ^{DLM}	<0.50	4.91	2.62			
Bacteriological Tests	E. coli (MPN/100mL)								
	Coliform Bacteria - Total (MPN/100mL)								
Total Metals	Aluminum (Al)-Total (mg/L)	0.0042	0.0129	0.0187	0.0187	0.0577			
	Antimony (Sb)-Total (mg/L)	0.00745	0.0203	0.0212	0.00063	0.00040			
	Arsenic (As)-Total (mg/L)	0.0274	0.394	0.399	0.0825	0.0580			
	Barium (Ba)-Total (mg/L)	0.0125	0.0509	0.0522	0.0673	0.0741			
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000040 ^{DLA}	<0.000040 ^{DLA}	<0.000020	<0.000020			
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.00010 ^{DLA}	0.00013	<0.000050	<0.000050			
	Boron (B)-Total (mg/L)	<0.010	0.155	0.153	0.051	0.036			
	Cadmium (Cd)-Total (mg/L)	0.00101	0.00616	0.00722	0.000565	0.000187			

* 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	L1889357-6	L1889357-7	L1889357-8	L1889357-9	L1889357-10
					Water	Water	Water	Water	Water
		08-FEB-17	20:15		08-FEB-17	08-FEB-17	08-FEB-17	08-FEB-17	07-FEB-17
					FIELD BLANK	WQ-VC-U	WQ-VC-DBC	WQ-VC-UMN	WQ-VC-R +150
Grouping	Analyte								
WATER									
Physical Tests	Colour, True (CU)								
	Conductivity (uS/cm)	<2.0	218	217	287	289			
	Hardness (as CaCO3) (mg/L)	<0.50	103	106	139	139			
	pH (pH)	5.44	7.69	7.70	7.75	7.75			
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	<3.0			
	Total Dissolved Solids (mg/L)								
	TDS (Calculated) (mg/L)	<1.0	115	118	162	160			
	Turbidity (NTU)								
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	<1.0	93.5	95.5	111	111			
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0			
	Alkalinity, Total (as CaCO3) (mg/L)	<1.0	93.5	95.5	111	111			
	Ammonia, Total (as N) (mg/L)	<0.0050	0.0068	0.0054	0.0051	<0.0050			
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050			
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50			
	Fluoride (F) (mg/L)	<0.020	0.045	0.045	0.045	0.053			
	Nitrate (as N) (mg/L)	<0.0050	0.104	0.100	0.0965	0.133			
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
	Sulfate (SO4) (mg/L)	<0.30	19.1	19.9	42.2	40.2			
	Anion Sum (meq/L)	<0.10	2.28	2.33	3.10	3.06			
	Cation Sum (meq/L)	<0.10	2.20	2.26	2.98	2.99			
	Cation - Anion Balance (%)	0.0	-1.8	-1.5	-2.0	-1.2			
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050			
	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050			
	Cyanate (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20			
	Thiocyanate (SCN) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50			
Bacteriological Tests	E. coli (MPN/100mL)								
	Coliform Bacteria - Total (MPN/100mL)								
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0030	0.0172	0.0151	0.0105	0.0133			
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	0.00068	0.00065			
	Arsenic (As)-Total (mg/L)	<0.00010	0.00028	0.00027	0.00144	0.00155			
	Barium (Ba)-Total (mg/L)	<0.000050	0.0937	0.0903	0.0909	0.0986			
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020			
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050			
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010			
	Cadmium (Cd)-Total (mg/L)	<0.000050	0.0000307	0.0000188	0.0000237	0.0000209			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1889357-11	L1889357-12		
		Description	Water	Water		
		Sampled Date	09-FEB-17	09-FEB-17		
		Sampled Time		11:30		
		Client ID	TRAVEL BLANK	WQ-PW		
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)			<5.0		
	Conductivity (uS/cm)		<2.0	348		
	Hardness (as CaCO3) (mg/L)		<0.50 ^{HTC}	178 ^{HTC}		
	pH (pH)		5.40	8.08		
	Total Suspended Solids (mg/L)		<3.0			
	Total Dissolved Solids (mg/L)			202		
	TDS (Calculated) (mg/L)		<1.0			
	Turbidity (NTU)				0.15	
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		<1.0			
	Alkalinity, Carbonate (as CaCO3) (mg/L)		<1.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)		<1.0			
	Alkalinity, Total (as CaCO3) (mg/L)		<1.0	165		
	Ammonia, Total (as N) (mg/L)		0.0112 ^{RRV}			
	Bromide (Br) (mg/L)		<0.050			
	Chloride (Cl) (mg/L)		<0.50	<0.50		
	Fluoride (F) (mg/L)		<0.020	0.097		
	Nitrate (as N) (mg/L)		<0.0050	0.122		
	Nitrite (as N) (mg/L)		<0.0010	<0.0010		
	Sulfate (SO4) (mg/L)		<0.30	31.1		
	Anion Sum (meq/L)		<0.10			
	Cation Sum (meq/L)		<0.10			
	Cation - Anion Balance (%)		0.0			
Cyanides	Cyanide, Weak Acid Diss (mg/L)		<0.0050			
	Cyanide, Total (mg/L)		<0.0050			
	Cyanate (mg/L)		<0.20			
	Thiocyanate (SCN) (mg/L)		<0.50			
Bacteriological Tests	E. coli (MPN/100mL)			<1		
	Coliform Bacteria - Total (MPN/100mL)			<1		
Total Metals	Aluminum (Al)-Total (mg/L)		<0.0030	<0.010		
	Antimony (Sb)-Total (mg/L)		<0.00010	<0.00050		
	Arsenic (As)-Total (mg/L)		<0.00010	0.00039		
	Barium (Ba)-Total (mg/L)		<0.000050	0.083		
	Beryllium (Be)-Total (mg/L)		<0.000020			
	Bismuth (Bi)-Total (mg/L)		<0.000050			
	Boron (B)-Total (mg/L)		<0.010	<0.10		
	Cadmium (Cd)-Total (mg/L)		<0.0000050	<0.00020		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1889357-1	L1889357-2	L1889357-3	L1889357-4	L1889357-5
		Description	Water	Water	Water	Water	Water
		Sampled Date	08-FEB-17	07-FEB-17	07-FEB-17	08-FEB-17	08-FEB-17
		Sampled Time	09:30	17:55	18:10	12:35	11:10
		Client ID	WQ-DC-DX + 105	WQ-TP	WQ-TP-R	WQ-SEEP	WQ-DC-U
Grouping	Analyte						
WATER							
Total Metals	Calcium (Ca)-Total (mg/L)		167	586	584	255	212
	Chromium (Cr)-Total (mg/L)		<0.00010	<0.00020 ^{DLA}	0.00033	0.00070	0.00048
	Cobalt (Co)-Total (mg/L)		0.00076	0.00270	0.00273	0.00747	0.00543
	Copper (Cu)-Total (mg/L)		<0.00050	0.0452	0.0467	0.00409	0.00220
	Iron (Fe)-Total (mg/L)		0.298	1.55	1.57	17.6	8.13
	Lead (Pb)-Total (mg/L)		0.000082	0.00523	0.00914	0.000111	0.000211
	Lithium (Li)-Total (mg/L)		0.0087	0.0209	0.0203	<0.0010	<0.0010
	Magnesium (Mg)-Total (mg/L)		59.3	115	114	62.3	57.6
	Manganese (Mn)-Total (mg/L)		1.19	11.2	11.2	6.62	5.01
	Mercury (Hg)-Total (mg/L)		<0.0000050	0.0000091	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)		0.000398	0.00447	0.00457	0.00110	0.000923
	Nickel (Ni)-Total (mg/L)		0.00139	0.0052 ^{DLA}	0.0054 ^{DLA}	0.00325	0.00273
	Phosphorus (P)-Total (mg/L)		<0.050	<0.10 ^{DLA}	<0.10 ^{DLA}	<0.050	0.053
	Potassium (K)-Total (mg/L)		3.62	36.1	36.2	6.69	5.23
	Selenium (Se)-Total (mg/L)		<0.000050	0.00012	0.00013	0.000266	0.000207
	Silicon (Si)-Total (mg/L)		7.08	8.43	8.52	8.53	7.74
	Silver (Ag)-Total (mg/L)		<0.000010	0.000161	0.000233	0.000039	0.000249
	Sodium (Na)-Total (mg/L)		5.50	38.1	37.9	36.9	26.6
	Strontium (Sr)-Total (mg/L)		0.408	1.58	1.59	0.762	0.666
	Sulfur (S)-Total (mg/L)		146	661	660	266	231
	Thallium (Tl)-Total (mg/L)		0.000084	0.000251 ^{DLA}	0.000249 ^{DLA}	<0.000010	<0.000010
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00020 ^{DLA}	<0.00020 ^{DLA}	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		<0.00030	<0.00060 ^{DLA}	<0.00060 ^{DLA}	0.00147	0.00293
	Uranium (U)-Total (mg/L)		0.00435	0.00319 ^{DLA}	0.00310 ^{DLA}	0.00204	0.00156
	Vanadium (V)-Total (mg/L)		<0.00050	<0.0010 ^{DLA}	<0.0010 ^{DLA}	0.00320	0.00187
	Zinc (Zn)-Total (mg/L)		0.587	0.603 ^{DLA}	0.607 ^{DLA}	0.0512	0.0245
	Zirconium (Zr)-Total (mg/L)		<0.00030	<0.00060 ^{DLA}	<0.00060 ^{DLA}	0.00079	0.00046
Dissolved Metals	Dissolved Mercury Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		<0.0010	0.0036	<0.0020 ^{DLA}	0.0094	0.0074
	Antimony (Sb)-Dissolved (mg/L)		0.00729	0.0145	0.0143	0.00050	0.00035
	Arsenic (As)-Dissolved (mg/L)		0.00628	0.244	0.239	0.0307	0.0392
	Barium (Ba)-Dissolved (mg/L)		0.0124	0.0495	0.0499	0.0608	0.0731
	Beryllium (Be)-Dissolved (mg/L)		<0.000020	<0.000040 ^{DLA}	<0.000040 ^{DLA}	<0.000020	<0.000020
	Bismuth (Bi)-Dissolved (mg/L)		<0.000050	<0.00010 ^{DLA}	<0.00010 ^{DLA}	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)		<0.010	0.149	0.149	0.047	0.035
	Cadmium (Cd)-Dissolved (mg/L)		0.000257	0.00665	0.00626	0.000326	0.000125

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1889357-6	L1889357-7	L1889357-8	L1889357-9	L1889357-10
		Description	Water	Water	Water	Water	Water
		Sampled Date	08-FEB-17	08-FEB-17	08-FEB-17	08-FEB-17	07-FEB-17
		Sampled Time	20:15	09:30	09:30	09:30	17:00
		Client ID	FIELD BLANK	WQ-VC-U	WQ-VC-DBC	WQ-VC-UMN	WQ-VC-R +150
Grouping	Analyte						
WATER							
Total Metals	Calcium (Ca)-Total (mg/L)	<0.050	27.0	27.5	35.4	34.9	
	Chromium (Cr)-Total (mg/L)	<0.00010	0.00011	<0.00010	0.00015	0.00078	
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	
	Copper (Cu)-Total (mg/L)	<0.00050	0.00155	0.00147	0.00164	0.00204	
	Iron (Fe)-Total (mg/L)	<0.010	0.024	0.018	0.057	0.014	
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
	Magnesium (Mg)-Total (mg/L)	<0.10	9.29	9.04	12.9	13.3	
	Manganese (Mn)-Total (mg/L)	<0.00010	0.150	0.154	0.0584	0.00511	
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
	Molybdenum (Mo)-Total (mg/L)	<0.000050	0.000368	0.000371	0.000282	0.000415	
	Nickel (Ni)-Total (mg/L)	<0.00050	0.00052	0.00058	<0.00050	0.00173	
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050	
	Potassium (K)-Total (mg/L)	<0.10	0.71	0.72	1.01	1.15	
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	0.000059	0.000057	
	Silicon (Si)-Total (mg/L)	<0.050	6.61	6.58	7.27	7.29	
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	<0.050	2.77	2.78	3.98	4.24	
	Strontium (Sr)-Total (mg/L)	<0.00020	0.297	0.304	0.336	0.337	
	Sulfur (S)-Total (mg/L)	<0.50	6.40	6.89	15.0	14.4	
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.00030	0.00040	0.00032	<0.00030	<0.00030	
	Uranium (U)-Total (mg/L)	<0.000010	0.000536	0.000567	0.000572	0.000769	
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030	<0.0030	0.0035	0.0035	
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD	
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)	<0.0010	0.0064	0.0065	0.0075	0.0059	
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	0.00067	0.00061	
	Arsenic (As)-Dissolved (mg/L)	<0.00010	0.00022	0.00023	0.00137	0.00142	
	Barium (Ba)-Dissolved (mg/L)	<0.000050	0.0907	0.0941	0.0908	0.0970	
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	0.0000261	0.0000281	0.0000255	0.0000068	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1889357-11	L1889357-12			
		Description	Water	Water			
		Sampled Date	09-FEB-17	09-FEB-17			
		Sampled Time		11:30			
		Client ID	TRAVEL BLANK	WQ-PW			
Grouping	Analyte						
WATER							
Total Metals	Calcium (Ca)-Total (mg/L)	<0.050	40.7				
	Chromium (Cr)-Total (mg/L)	<0.00010	<0.0020				
	Cobalt (Co)-Total (mg/L)	<0.00010					
	Copper (Cu)-Total (mg/L)	<0.00050	<0.0010				
	Iron (Fe)-Total (mg/L)	<0.010	<0.030				
	Lead (Pb)-Total (mg/L)	<0.000050	0.00055				
	Lithium (Li)-Total (mg/L)	<0.0010					
	Magnesium (Mg)-Total (mg/L)	<0.10	18.7				
	Manganese (Mn)-Total (mg/L)	<0.00010	<0.0020				
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.00020				
	Molybdenum (Mo)-Total (mg/L)	<0.000050					
	Nickel (Ni)-Total (mg/L)	<0.00050					
	Phosphorus (P)-Total (mg/L)	<0.050					
	Potassium (K)-Total (mg/L)	<0.10	0.91				
	Selenium (Se)-Total (mg/L)	<0.000050	<0.0010				
	Silicon (Si)-Total (mg/L)	<0.050					
	Silver (Ag)-Total (mg/L)	<0.000010					
	Sodium (Na)-Total (mg/L)	<0.050	4.7				
	Strontium (Sr)-Total (mg/L)	<0.00020					
	Sulfur (S)-Total (mg/L)	<0.50					
	Thallium (Tl)-Total (mg/L)	<0.000010					
	Tin (Sn)-Total (mg/L)	<0.00010					
	Titanium (Ti)-Total (mg/L)	<0.00030					
	Uranium (U)-Total (mg/L)	<0.000010	0.00167				
	Vanadium (V)-Total (mg/L)	<0.00050					
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.050				
	Zirconium (Zr)-Total (mg/L)	<0.00030					
Dissolved Metals	Dissolved Mercury Filtration Location						
	Dissolved Metals Filtration Location						
	Aluminum (Al)-Dissolved (mg/L)						
	Antimony (Sb)-Dissolved (mg/L)						
	Arsenic (As)-Dissolved (mg/L)						
	Barium (Ba)-Dissolved (mg/L)						
	Beryllium (Be)-Dissolved (mg/L)						
	Bismuth (Bi)-Dissolved (mg/L)						
	Boron (B)-Dissolved (mg/L)						
	Cadmium (Cd)-Dissolved (mg/L)						

* 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	L1889357-1 Water 08-FEB-17 09:30 WQ-DC-DX + 105	L1889357-2 Water 07-FEB-17 17:55 WQ-TP	L1889357-3 Water 07-FEB-17 18:10 WQ-TP-R	L1889357-4 Water 08-FEB-17 12:35 WQ-SEEP	L1889357-5 Water 08-FEB-17 11:10 WQ-DC-U
Grouping	Analyte					
WATER						
Dissolved Metals	Calcium (Ca)-Dissolved (mg/L)	163	567	572	252	221
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00020 ^{DLA}	<0.00020 ^{DLA}	0.00042	0.00030
	Cobalt (Co)-Dissolved (mg/L)	0.00077	0.00262	0.00261	0.00695	0.00531
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.0373	0.0361	0.00173	0.00081
	Iron (Fe)-Dissolved (mg/L)	0.048	0.620	0.592	14.5	5.86
	Lead (Pb)-Dissolved (mg/L)	0.000077	0.00098	0.00095	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0086	0.0201	0.0201	<0.0010	<0.0010
	Magnesium (Mg)-Dissolved (mg/L)	59.7	112	112	60.1	59.7
	Manganese (Mn)-Dissolved (mg/L)	1.20	11.0	10.9	6.38	5.07
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	0.0000052	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000360	0.00430	0.00432	0.000995	0.000877
	Nickel (Ni)-Dissolved (mg/L)	0.00133	0.0048	0.0048	0.00309	0.00241
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.10 ^{DLA}	<0.10 ^{DLA}	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	3.65	35.3	35.7	6.56	5.38
	Selenium (Se)-Dissolved (mg/L)	<0.000050	0.00012	0.00014	0.000262	0.000188
	Silicon (Si)-Dissolved (mg/L)	6.93	8.16	8.12	8.18	7.42
	Silver (Ag)-Dissolved (mg/L)	<0.000010	0.000054	0.000057	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	5.52	37.3	37.0	35.5	27.5
	Strontium (Sr)-Dissolved (mg/L)	0.399	1.54	1.55	0.734	0.690
	Sulfur (S)-Dissolved (mg/L)	143	642	635	255	219
	Thallium (Tl)-Dissolved (mg/L)	0.000074	0.000241	0.000243	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00020 ^{DLA}	<0.00020 ^{DLA}	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00060 ^{DLA}	<0.00060 ^{DLA}	0.00085	0.00047
	Uranium (U)-Dissolved (mg/L)	0.00411	0.00301	0.00307	0.00197	0.00159
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.0010 ^{DLA}	<0.0010 ^{DLA}	0.00157	0.00092
	Zinc (Zn)-Dissolved (mg/L)	0.591	0.582	0.576	0.0485	0.0238
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00060 ^{DLA}	<0.00060 ^{DLA}	0.00067	0.00042

* 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	L1889357-6	L1889357-7	L1889357-8	L1889357-9	L1889357-10
		Water 08-FEB-17 20:15 FIELD BLANK	Water 08-FEB-17 09:30 WQ-VC-U	Water 08-FEB-17 09:30 WQ-VC-DBC	Water 08-FEB-17 09:30 WQ-VC-UMN	Water 07-FEB-17 17:00 WQ-VC-R +150
Grouping	Analyte					
WATER						
Dissolved Metals	Calcium (Ca)-Dissolved (mg/L)	<0.050	26.3	27.0	34.8	34.5
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	0.00013
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	0.00012	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00027 ^{RRV}	0.00118	0.00121	0.00159	0.00126
	Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	<0.010	0.048	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Magnesium (Mg)-Dissolved (mg/L)	<0.10	9.01	9.38	12.7	12.9
	Manganese (Mn)-Dissolved (mg/L)	<0.00010	0.145	0.158	0.0569	0.00424
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	0.000320	0.000319	0.000246	0.000362
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050	0.00054	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	<0.10	0.69	0.71	0.99	1.10
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	0.000071	0.000051
	Silicon (Si)-Dissolved (mg/L)	<0.050	6.34	6.50	7.14	7.16
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	<0.050	2.69	2.81	3.93	4.10
	Strontium (Sr)-Dissolved (mg/L)	<0.00020	0.288	0.293	0.326	0.328
	Sulfur (S)-Dissolved (mg/L)	<0.50	6.33	6.66	14.3	13.8
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Uranium (U)-Dissolved (mg/L)	<0.000010	0.000499	0.000514	0.000536	0.000724
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	0.0012	0.0019	0.0030	0.0061
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

* 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	L1889357-11 Water 09-FEB-17 TRAVEL BLANK	L1889357-12 Water 09-FEB-17 11:30 WQ-PW		
Grouping	Analyte				
WATER					
Dissolved Metals	Calcium (Ca)-Dissolved (mg/L) Chromium (Cr)-Dissolved (mg/L) Cobalt (Co)-Dissolved (mg/L) Copper (Cu)-Dissolved (mg/L) Iron (Fe)-Dissolved (mg/L) Lead (Pb)-Dissolved (mg/L) Lithium (Li)-Dissolved (mg/L) Magnesium (Mg)-Dissolved (mg/L) Manganese (Mn)-Dissolved (mg/L) Mercury (Hg)-Dissolved (mg/L) Molybdenum (Mo)-Dissolved (mg/L) Nickel (Ni)-Dissolved (mg/L) Phosphorus (P)-Dissolved (mg/L) Potassium (K)-Dissolved (mg/L) Selenium (Se)-Dissolved (mg/L) Silicon (Si)-Dissolved (mg/L) Silver (Ag)-Dissolved (mg/L) Sodium (Na)-Dissolved (mg/L) Strontium (Sr)-Dissolved (mg/L) Sulfur (S)-Dissolved (mg/L) Thallium (Tl)-Dissolved (mg/L) Tin (Sn)-Dissolved (mg/L) Titanium (Ti)-Dissolved (mg/L) Uranium (U)-Dissolved (mg/L) Vanadium (V)-Dissolved (mg/L) Zinc (Zn)-Dissolved (mg/L) Zirconium (Zr)-Dissolved (mg/L)				

* 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)
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1889357-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1889357-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1889357-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1889357-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1889357-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1889357-1, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
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).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
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**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
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.			
BE-D-L-CCMS-VA	Water	Diss. Be (low) 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.			
BE-T-L-CCMS-VA	Water	Total Be (Low) 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.			
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.			
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.			
CN-CNO-WT	Water	Cyanate	APHA 4500-CN-L
This analysis is carried out using procedures adapted from APHA method 4500-CN "Cyanide". Cyanate is determined by the Cyanate hydrolysis method using an ammonia selective electrode			
CN-SCN-VA	Water	Thiocyanate by Colour	APHA 4500-CN CYANIDE
This analysis is carried out using procedures adapted from APHA Method 4500-CN- M "Thiocyanate" Thiocyanate is determined by the ferric nitrate colourimetric method.			
Water samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method. Contact ALS for additional information if required.			
CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002
This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.			
CN-WAD-CFA-VA	Water	Weak Acid Diss. Cyanide in water by CFA	APHA 4500-CN CYANIDE

Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

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.

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.

ECOLI-COLI-BCDW-VA Water E.coli by Colilert APHA METHOD 9223

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.

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 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.

HG-TOT-CVAFS-VA Water Total Hg in Water by CVAFS LOR=50ppt EPA 1631E (mod)

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 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 or atomic absorption spectrophotometry (EPA Method 245.7).

IONBALANCE-VA Water Ion Balance Calculation APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

$$\text{Ion Balance (\%)} = \frac{[\text{Cation Sum} - \text{Anion Sum}]}{[\text{Cation Sum} + \text{Anion Sum}]}$$

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.

NH3-F-VA Water Ammonia in Water by Fluorescence APHA 4500 NH3-NITROGEN (AMMONIA)

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.

Reference Information

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.			
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.			
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.			
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.			
TCOLI-COLI-BCDW-VA	Water	Total coliform by Colilert	APHA METHOD 9223
This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is quantified by a statistical estimation of bacteria density (most probable number).			
TDS-CALC-VA	Water	TDS (Calculated)	APHA 1030E (20TH EDITION)
This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".			
The Total Dissolved Solids result is calculated from measured concentrations of anions and cations in the sample.			
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
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

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 wwt - 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.



Acute Toxicity Test Results

Sample L1889357-13 WQ-SEEP,
collected February 8, 2017

Final Report

February 22, 2017

Submitted to: **ALS Environmental**
Burnaby, BC

SAMPLE INFORMATION

Sample ID	Dates		Rainbow trout test initiation	Receipt temperature
	Collected	Received		
L1889357-13 WQ-SEEP	08-Feb-17 at N/A	11-Feb-17 at 1325h	12-Feb-17 at 1100h	4.5°C

N/A = Not Available.

TESTS

- Rainbow trout 96-h LC50 test

RESULTS

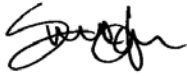
Toxicity test results

Sample ID	LC50 (% v/v)
L1889357-13 WQ-SEEP	>100

QA/QC

QA/QC summary	Rainbow trout
Reference toxicant LC50 (95% CL)	46.6 (37.6 – 57.8) µg/L Zn ¹
Reference toxicant historical mean (2 SD range)	55.9 (22.6 – 138.4) µg/L Zn
Reference toxicant CV	57%
Organism health history	Acceptable
Protocol deviations	None
Water quality range deviations	None
Control performance	Acceptable
Test performance	Valid

¹ Test date: February 3, 2017, LC = Lethal Concentration, SD = Standard Deviation, CV = Coefficient of Variation



Report By:
Yvonne Lam, B.Sc.
Laboratory Biologist



Reviewed By:
Edmund Canaria, R.P.Bio
Senior Analyst

This report has been prepared by Nautilus Environmental Company Inc. based on data and/or samples provided by our client and the results of this study are for their sole benefit. Any reliance on the data by a third party is at the sole and exclusive risk of that party. The results presented here relate only to the samples tested.

APPENDIX A – Summary of test conditions

Table 1. Summary of test conditions: 96-h rainbow trout (*Oncorhynchus mykiss*) LC50 test.

Test species	<i>Oncorhynchus mykiss</i>
Organism source	Hatchery
Organism age	Juvenile
Test type	Static
Test duration	96 hours
Test vessel	20-L glass aquarium
Test volume	10 to 20 L (depending on size of fish)
Test solution depth	≥15 cm
Test concentrations	Five concentrations, plus laboratory control
Test replicates	1 per treatment
Number of organisms	10 per replicate
Control/dilution water	Dechlorinated Metro Vancouver municipal tapwater
Test solution renewal	None
Test temperature	15 ± 1°C
Feeding	None
Light intensity	100 to 500 lux
Photoperiod	16 hours light / 8 hours dark
Aeration	6.5 ± 1 mL/min/L
Test measurements	Temperature, dissolved oxygen and pH measured daily; salinity measured in the undiluted sample at test initiation; conductivity measured at test initiation and termination; survival checked daily
Test protocol	Environment Canada (2000), EPS 1/RM/13, with 2007 & 2016 amendments
Statistical software	CETIS Version 1.8.7
Test endpoints	Survival (96-hour LC50)
Test acceptability criterion for controls	Survival ≥90%
Reference toxicant	Zinc (added as ZnCl ₂)

APPENDIX B – Toxicity test data

Rainbow Trout Summary Sheet

Client: ALS

Start Date/Time: Feb 12/17 @ 1100h

Work Order No.: 170072

Test Species: Oncorhynchus mykiss

Sample Information:

Sample ID: L1889357-13WQ-SEEP
Sample Date: Feb 8/17
Date Received: Feb 11/17
Sample Volume: 2 X 20 L
Other: -

Test Validity Criteria:
≥ 90% control survival
WQ Ranges:
T (°C) = 15 ± 1; DO (mg/L) = 7.0 to 10.3; pH = 5.5 to 8.5

Dilution Water:

Type: Dechlorinated Municipal Tap Water
Hardness (mg/L CaCO₃): 7
Alkalinity (mg/L CaCO₃): 5

Test Organism Information:

Batch No.: 011917
Source: Vancouver Island Trout Hatchery
No. Fish/Volume (L): 10/12
Loading Density (g/L): 0.30
Mean Length ± SD (mm): 31 ± 1
Mean Weight ± SD (g): 0.37 ± 0.06

Range: 29 - 34
Range: 0.31 - 0.49

Zinc Reference Toxicant Results:

Reference Toxicant ID: RTZn63
Stock Solution ID: 16Zn02
Date Initiated: Feb 3/17
96-h LC50 (95% CL): 46.6 (37.6 - 57.8) µg/L Zn

Reference Toxicant Mean and Historical Range: 55.9 (22.6 - 138.4) µg/L Zn
Reference Toxicant CV (%): 57

Test Results: The 96 hours LC50 is estimated to be >100% (v/v).

Reviewed by: 

Date reviewed: Feb 21, 2017

96-Hour Rainbow Trout Toxicity Test Data Sheet

Client/Project#: ALS
 Sample I.D. L1889357-13 WQ-SEEP
 W.O. # 170072
 RBT Batch #: 011917
 Date Collected/Time: Feb. 8/17 @ (not available)
 Date Setup/Time: Feb 12/17 @ 1100h
 Sample Setup By: AS

Number Fish/Volume: 10 / 12 L
 7-d % Mortality: 0.5
 Total Pre-aeration Time (mins): 30
 Aeration rate adjusted to 6.5 ± 1 mL/min/L? (Y/N): Yes

Thermometer: CER #2 D.O. meter: 2
 Cond./Salinity: 2 pH meter: 1

Undiluted Sample WQ			
Parameters	Initial WQ	Adjustment	30 min WQ
Temp °C	14.2	/	14.2
D.O. (mg/L)	9.4		9.6
pH	6.8		7.0
Cond. (µS/cm)	1610		1612
Salinity (ppt)	0.8		0.8

Concentration	# Survivors							Temperature (°C)					Dissolved Oxygen (mg/L)					pH					Conductivity (µS/cm)	
	(% v/v)	1	2	4	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0
Control				10	10	10	10	14.2	14.5	14.5	14.5	14.5	10.1	9.8	10.0	9.6	9.6	7.1	7.1	7.1	7.0	6.9	28	33
6.25				10	10	10	10	14.2	14.5	14.5	14.5	14.5	10.1	9.8	10.0	9.7	9.6	7.0	7.4	7.3	7.1	7.1	201	206
12.5				10	10	10	10	14.2	14.5	14.5	14.5	14.5	10.2	9.9	10.0	9.7	9.6	7.0	7.7	7.6	7.4	7.3	312	313
25				10	10	10	10	14.2	14.5	14.5	14.5	14.5	10.0	9.8	10.0	9.8	9.7	6.9	7.9	7.8	7.7	7.7	529	534
50				10	10	10	10	14.2	14.5	14.5	14.5	14.5	9.9	9.8	10.0	9.8	9.6	6.9	8.2	8.2	7.9	8.0	869	894
100				9	9	9	9	14.2	14.5	14.5	14.5	14.5	9.7	9.8	10.1	9.8	9.6	7.0	8.3	8.4	8.2	8.2	1612	1560
Initials				MM	EC	EC	EC	A	MM	EC	EL	EL	A	MM	EL	EL	EL	A	MM	EL	EL	EL	A	EL

Sample Description/Comments: dark orange - turbid - odorous - some ppt present

Fish Description at 96 h All surviving fish appear normal Number of Stressed Fish at 96 h 0

Other Observations: _____

Reviewed by: [Signature] Date Reviewed: Feb 21, 2017

APPENDIX C – Chain-of-custody form



L1889357

VANCOUVER

Subcontract Request Form

Subcontract To:

NAUTILUS ENVIRONMENTAL

8664 COMMERCE COURT
BURNABY, BC V5A 4N7

NOTES: Please reference on final report and invoice: PO# L1889357
ALS requires QC data to be provided with your final results.

Please see enclosed 1 sample(s) in 2 Container(s)

Table with columns: SAMPLE NUMBER, ANALYTICAL REQUIRED, DATE SAMPLED, DUE DATE, Priority Flag. Row 1: L1889357-13 WQ-SEEP, Trout Bioassay LC50 (96 Hour) - Nautilus (TROUT-LC50-96HR-NL 1), 2/8/2017, 2/15/2017

Subcontract Info Contact: Walter Lin (604) 253-4188
Analysis and reporting info contact: Can Dang
8081 LOUGHEED HWY
SUITE 100
BURNABY, BC V5A 1W9
Phone: (604) 253-4188 Email: can.dang@alsglobal.com

Please email confirmation of receipt to: can.dang@alsglobal.com

Shipped By: [Signature] Date Shipped: Feb 11, 2017
Received By: Mimi Tran [Signature] Date Received: Feb 11/17 @ B25h
Verified By: Mimi Tran Date Verified: Feb 11/17
Temperature: 4.5°C
Sample Integrity Issues: OK

2x 20L

Wo 170071 NY
170072

END OF REPORT



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L1889357-COFC

COC Number:

Page 1 of 4

www.alsglobal.com

Report To Company: EDI Contact: Lyndsay Doetzel Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8 Phone: 867-393-4882		Report Format / Distribution Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>ldoetzel@edynamics.com</u> Email 2: <u>Emilie.Hamm@gov.yk.ca</u> Email 3: <u>erik.pit@gov.yk.ca</u>			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge Specify Date Required for E2,E or P:																																																																																																																																																																																																																																				
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Company: EDI Contact: S Jenner		Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>sienner@edynamics.com</u> Email 2: <u>ldoetzel@edynamics.com</u>			Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																																																																																																																																																																																																				
Project Information ALS Quote #: Q55559 Job #: MOUNT NANSEN 16-Y-0089 PO / AFE: LSD:		Oil and Gas Required Fields (client use) Approver ID: _____ Cost Center: _____ GL Account: _____ Routing Code: _____ Activity Code: _____ Location: _____			<table border="1"> <tr> <th></th> <th>P</th> <th>P</th> <th>P</th> <th>P</th> <th>P</th> <th>F/P</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <td>ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>ANIONS-ALL-IC-WR, TSS-MAN-WR</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>CN-WAD-CFA-VA, CN-T-CFA-VA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>CN-CNO-WT</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>CN-SCN-VA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>NH3-F-VA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>MET-T-BCMDG-VA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>MET-D-BCMDG-VA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>IONBALANC-VA, TDS-CALC-VA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>											P	P	P	P	P	F/P															ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA																						ANIONS-ALL-IC-WR, TSS-MAN-WR																						CN-WAD-CFA-VA, CN-T-CFA-VA																						CN-CNO-WT																						CN-SCN-VA																						NH3-F-VA																						MET-T-BCMDG-VA																						MET-D-BCMDG-VA																						IONBALANC-VA, TDS-CALC-VA																					
	P	P	P	P	P	F/P																																																																																																																																																																																																																																			
ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA																																																																																																																																																																																																																																									
ANIONS-ALL-IC-WR, TSS-MAN-WR																																																																																																																																																																																																																																									
CN-WAD-CFA-VA, CN-T-CFA-VA																																																																																																																																																																																																																																									
CN-CNO-WT																																																																																																																																																																																																																																									
CN-SCN-VA																																																																																																																																																																																																																																									
NH3-F-VA																																																																																																																																																																																																																																									
MET-T-BCMDG-VA																																																																																																																																																																																																																																									
MET-D-BCMDG-VA																																																																																																																																																																																																																																									
IONBALANC-VA, TDS-CALC-VA																																																																																																																																																																																																																																									
ALS Lab Work Order # (lab use only)		ALS Contact: V. Dykshoorn Sampler:			<table border="1"> <thead> <tr> <th>ALS Sample # (lab use only)</th> <th>Sample Identification and/or Coordinates (This description will appear on the report)</th> <th>Date (dd-mmm-yy)</th> <th>Time (hh:mm)</th> <th>Sample Type</th> <th>ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA</th> <th>ANIONS-ALL-IC-WR, TSS-MAN-WR</th> <th>CN-WAD-CFA-VA, CN-T-CFA-VA</th> <th>CN-CNO-WT</th> <th>CN-SCN-VA</th> <th>NH3-F-VA</th> <th>MET-T-BCMDG-VA</th> <th>MET-D-BCMDG-VA</th> <th>IONBALANC-VA, TDS-CALC-VA</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Number of Containers</th> </tr> </thead> <tbody> <tr> <td></td> <td>WQ-DC-DX + 105</td> <td>08-FEB-17</td> <td>09:30</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9</td> </tr> <tr> <td></td> <td>WQ-TP</td> <td>07-FEB-17</td> <td>17:55</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9</td> </tr> <tr> <td></td> <td>WQ-TP-12</td> <td>07-FEB-17</td> <td>18:10</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9</td> </tr> <tr> <td></td> <td>WQ-SEEP</td> <td>08-FEB-17</td> <td>12:35</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9</td> </tr> <tr> <td></td> <td>WQ-DC-U</td> <td>08-FEB-17</td> <td>11:10</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9</td> </tr> <tr> <td></td> <td>FIELD BLANK</td> <td>08-FEB-17</td> <td>20:15</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9</td> </tr> <tr> <td></td> <td></td> <td>-FEB-17</td> <td></td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9</td> </tr> <tr> <td></td> <td></td> <td>-FEB-17</td> <td></td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>9</td> </tr> </tbody> </table>																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	ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA	ANIONS-ALL-IC-WR, TSS-MAN-WR	CN-WAD-CFA-VA, CN-T-CFA-VA	CN-CNO-WT	CN-SCN-VA	NH3-F-VA	MET-T-BCMDG-VA	MET-D-BCMDG-VA	IONBALANC-VA, TDS-CALC-VA								Number of Containers		WQ-DC-DX + 105	08-FEB-17	09:30	Water	R	R	R	R	R	R	R	R	R	R								9		WQ-TP	07-FEB-17	17:55	Water	R	R	R	R	R	R	R	R	R	R								9		WQ-TP-12	07-FEB-17	18:10	Water	R	R	R	R	R	R	R	R	R	R								9		WQ-SEEP	08-FEB-17	12:35	Water	R	R	R	R	R	R	R	R	R	R								9		WQ-DC-U	08-FEB-17	11:10	Water	R	R	R	R	R	R	R	R	R	R								9		FIELD BLANK	08-FEB-17	20:15	Water	R	R	R	R	R	R	R	R	R	R								9			-FEB-17		Water	R	R	R	R	R	R	R	R	R	R								9			-FEB-17		Water	R	R	R	R	R	R	R	R	R	R								9							
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	ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA	ANIONS-ALL-IC-WR, TSS-MAN-WR	CN-WAD-CFA-VA, CN-T-CFA-VA	CN-CNO-WT	CN-SCN-VA	NH3-F-VA	MET-T-BCMDG-VA	MET-D-BCMDG-VA	IONBALANC-VA, TDS-CALC-VA								Number of Containers																																																																																																																																																																																																																				
	WQ-DC-DX + 105	08-FEB-17	09:30	Water	R	R	R	R	R	R	R	R	R	R								9																																																																																																																																																																																																																			
	WQ-TP	07-FEB-17	17:55	Water	R	R	R	R	R	R	R	R	R	R								9																																																																																																																																																																																																																			
	WQ-TP-12	07-FEB-17	18:10	Water	R	R	R	R	R	R	R	R	R	R								9																																																																																																																																																																																																																			
	WQ-SEEP	08-FEB-17	12:35	Water	R	R	R	R	R	R	R	R	R	R								9																																																																																																																																																																																																																			
	WQ-DC-U	08-FEB-17	11:10	Water	R	R	R	R	R	R	R	R	R	R								9																																																																																																																																																																																																																			
	FIELD BLANK	08-FEB-17	20:15	Water	R	R	R	R	R	R	R	R	R	R								9																																																																																																																																																																																																																			
		-FEB-17		Water	R	R	R	R	R	R	R	R	R	R								9																																																																																																																																																																																																																			
		-FEB-17		Water	R	R	R	R	R	R	R	R	R	R								9																																																																																																																																																																																																																			
Drinking Water (DW) Samples¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No		Special Instructions / Specify Criteria to add on report (client Use)			SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations: Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: <u>-2.0</u> FINAL COOLER TEMPERATURES °C: _____ SHIPMENT RELEASE (client use) INITIAL SHIPMENT RECEPTION (lab use only) FINAL SHIPMENT RECEPTION (lab use only) Released by: <u>A. MISCHLER</u> Date: <u>09 FEB 17</u> Time: <u>17:50</u> Received by: <u>KEHF</u> Date: <u>9 Feb 17</u> Time: <u>17:50</u> Received by: _____ Date: _____ Time: _____																																																																																																																																																																																																																																				

**Short Holding Time
Rush Processing**

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY 14-FM-03/26-05-Fred-04 January 2014
 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.



Report To		Report Format / Distribution			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)																														
Company: EDI		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)			R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)																														
Contact: Lyndsay Doetzel		Quality Control (QC) Report with Report <input type="checkbox"/> Yes <input type="checkbox"/> No			P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT																														
Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8		<input type="checkbox"/> Criteria on Report - provide details below if box checked			E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT																														
Phone: 867-393-4882		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge																														
		Email 1 or Fax ldoetzel@edynamics.com			Specify Date Required for E2, E or P:																														
		Email 2 Emilie.Hamm@gov.yk.ca																																	
		Email 3 erik.pit@gov.yk.ca																																	
Invoice To		Invoice Distribution			Analysis Request																														
Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																														
Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Email 1 or Fax sjenner@edynamics.com																																	
Company: EDI		Email 2 ldoetzel@edynamics.com																																	
Contact: S Jenner																																			
Project Information		Oil and Gas Required Fields (client use)																																	
ALS Quote #: Q55559		Approver ID:			ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA			ANIONS-ALL-IC-WR, TSS-MAN-WR			CN-WAD-CFA-VA, CN-T-CFA-VA			CN-CNO-WT			CN-SCN-VA			NH3-F-VA			MET-T-BCMDG-VA			MET-D-BCMDG-VA			IONBALANC-VA, TDS-CALC-VA			Number of Containers			
Job #: MOUNT NANSEN 16-Y-0089		Cost Center:																																	
PO / AFE:		GL Account:																																	
LSD:		Routing Code:																																	
		Activity Code:																																	
ALS Lab Work Order # (lab use only)		ALS Contact: V. Dykshoorn			Sampler:																														
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	ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA	ANIONS-ALL-IC-WR, TSS-MAN-WR	CN-WAD-CFA-VA, CN-T-CFA-VA	CN-CNO-WT	CN-SCN-VA	NH3-F-VA	MET-T-BCMDG-VA	MET-D-BCMDG-VA	IONBALANC-VA, TDS-CALC-VA																	
	WQ - VC - U				08 - FEB - 17		17:40		Water	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	9	
	WQ - VC - DBC				08 - FEB - 17		17:20		Water	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	9	
	WQ - VC - UMN				08 - FEB - 17		14:50		Water	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	9	
	WQ - VC - R + 150				07 - FEB - 17		17:00		Water	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	9	
	TRAVEL BLANK				09 - FEB - 17		Ø		Water	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	9	
					- FEB - 17				Water	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	9	
					- FEB - 17				Water	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	9	
					- FEB - 17				Water	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	9	
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report (client use)														SAMPLE CONDITION AS RECEIVED (lab use only)																			
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No																Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>																			
Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No																Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>																			
																Cooling Initiated <input checked="" type="checkbox"/>																			
																INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C														
																-2.0																			
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)														FINAL SHIPMENT RECEPTION (lab use only)																			
Released by: A. MISCHLER		Date: 09 FEB 17		Time: 17:50		Received by: ENF		Date: 9 Feb 2017		Time: 17:50		Received by:		Date:		Time:																			

**Short Holding Time
Rush Processing**



Report To		Report Format / Distribution			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)																																																																																																																																																																																																																																																			
Company: EDI		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)			R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)																																																																																																																																																																																																																																																			
Contact: Lyndsay Doetzel		Quality Control (QC) Report with Report <input type="checkbox"/> Yes <input type="checkbox"/> No			P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT																																																																																																																																																																																																																																																			
Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8		<input type="checkbox"/> Criteria on Report - provide details below if box checked			E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT																																																																																																																																																																																																																																																			
Phone: 867-393-4882		Select Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge																																																																																																																																																																																																																																																			
		Email 1 or Fax <u>ldoetzel@edynamics.com</u>			Specify Date Required for E2,E or P:																																																																																																																																																																																																																																																			
		Email 2 <u>Emilie.Hamm@gov.yk.ca</u>																																																																																																																																																																																																																																																						
		Email 3 <u>erik.pit@gov.yk.ca</u>																																																																																																																																																																																																																																																						
Invoice To		Invoice Distribution			Analysis Request																																																																																																																																																																																																																																																			
Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																																																																																																																																																																																																																			
Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Email 1 or Fax <u>sienner@edynamics.com</u>			<table border="1" style="width:100%; height: 200px;"> <tr> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">FULL-TOT-DW+WF + BACT</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>							FULL-TOT-DW+WF + BACT																																																																																																																																																																																																																																												
FULL-TOT-DW+WF + BACT																																																																																																																																																																																																																																																								
Company: EDI		Email 2 <u>ldoetzel@edynamics.com</u>			Number of Containers																																																																																																																																																																																																																																																			
Contact: S Jenner		Email 1 or Fax <u>sienner@edynamics.com</u>																																																																																																																																																																																																																																																						
Project Information					Oil and Gas Required Fields (client use)																																																																																																																																																																																																																																																			
ALS Quote #: Q55556		Approver ID:		Cost Center:																																																																																																																																																																																																																																																				
Job #: MOUNT NANSEN 16-Y-0089		GL Account:		Routing Code:																																																																																																																																																																																																																																																				
PO / AFE:		Activity Code:																																																																																																																																																																																																																																																						
LSD:		Location:																																																																																																																																																																																																																																																						
ALS Lab Work Order # (lab use only)		ALS Contact: V. Dykshoorn		Sampler:																																																																																																																																																																																																																																																				
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																																																																																																																																																																																																																																																		
	WQ-PW			09-FEB-17	11:30	Water	R												3																																																																																																																																																																																																																																					
<div style="border: 2px solid black; padding: 5px; background-color: #d3d3d3; transform: rotate(-5deg); display: inline-block;"> Short Holding Time Rush Processing </div>																																																																																																																																																																																																																																																								
Drinking Water (DW) Samples¹ (client use)					Special Instructions / Specify Criteria to add on report (client Use)					SAMPLE CONDITION AS RECEIVED (lab use only)																																																																																																																																																																																																																																														
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No										Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																																																																																																																																																																																														
Are samples for human drinking water use? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																																																																																																																																																																																														
										Cooling Initiated <input checked="" type="checkbox"/>																																																																																																																																																																																																																																														
										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: <u>A. MISCHLER</u>		Date: <u>09-FEB-17</u>	Time: <u>17:50</u>	Received by: <u>ELF</u>		Date: <u>9 Feb 2017</u>	Time: <u>17:50</u>	Received by:		Date:	Time:																																																																																																																																																																																																																																													



L1889357-COFC

COC Number:

Page 4 of 4

Report To		Report Format / Distribution			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)									
Company: EDI		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)			R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)									
Contact: Lyndsay Doetzel		Quality Control (QC) Report with Report <input type="checkbox"/> Yes <input type="checkbox"/> No			P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT									
Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8		<input type="checkbox"/> Criteria on Report - provide details below if box checked			E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT									
Phone: 867-393-4882		Select Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge									
		Email 1 or Fax: <u>ldoetzel@edynamics.com</u>			Specify Date Required for E2, E or P:									
		Email 2: <u>erik.pit@gov.yk.ca</u>												
		Email 3: <u>Emilie.Hamm@gov.yk.ca</u>												
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution			Analysis Request									
Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below									
Company: EDI		Email 1 or Fax: <u>sienner@edynamics.com</u>			Rainbow Trout LC50 Number of Containers									
Contact: S Jenner		Email 2: <u>ldoetzel@edynamics.com</u>												
Project Information		Oil and Gas Required Fields (client use)												
ALS Quote #: Q55559		Approver ID: _____ Cost Center: _____												
Job #: MOUNT NANSEN 16Y0089		GL Account: _____ Routing Code: _____												
PO / AFE: _____		Activity Code: _____												
LSD: _____		Location: _____												
ALS Lab Work Order #: (lab use only) _____		ALS Contact: V. Dykshoorn Sampler: _____												
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			
	WQ-SEEP	08-FEB-16	12:35	Water						R				2
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report (client Use)			SAMPLE CONDITION AS RECEIVED (lab use only)									
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No					Frozen: <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>									
Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No					Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>									
					Cooling Initiated <input type="checkbox"/>									
					INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C							
					-2.0									
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)									
Released by: <u>A. MISCHLER</u>		Date: <u>09 FEB 17</u>	Time: <u>17:50</u>	Received by: <u>E.H.F.</u>	Date: <u>9 Feb 17</u>	Time: <u>17:50</u>	Received by:							
							Date: Time:							