



ENVIRONMENTAL DYNAMICS INC.  
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Date Received: 16-DEC-15  
Report Date: 31-DEC-15 11:01 (MT)  
Version: FINAL

Client Phone: 867-393-4882

## Certificate of Analysis

Lab Work Order #: L1715452  
Project P.O. #: NOT SUBMITTED  
Job Reference: MOUNT NANSEN 15-Y-0146  
C of C Numbers: 1, 2  
Legal Site Desc:

Can Dang  
Senior Account Manager

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1715452-1	L1715452-2	L1715452-3	L1715452-4	L1715452-5
					Water	Water	Water	Water	Water
		14-DEC-15	14-DEC-15	14-DEC-15	14-DEC-15	14-DEC-15	14-DEC-15	14-DEC-15	15-DEC-15
		14:25	17:40	18:15	13:55	10:30			
		FIELD BLANK	WQ-SEEP	WQ-TP	WQ-VC-R+150	WQ-DC-DX+105-R			
Grouping	Analyte								
<b>WATER</b>									
<b>Physical Tests</b>	Conductivity (uS/cm)	<2.0	1630	1880	250	1180			
	Hardness (as CaCO3) (mg/L)	<0.50	898	1120	125	693			
	pH (pH)	6.02	7.25	7.82	7.71	7.42			
	Total Suspended Solids (mg/L)	<3.0	37.0	<3.0	<3.0	<3.0			
	Total Dissolved Solids (mg/L)	<1.0	1250	1560	134	818			
<b>Anions and Nutrients</b>	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	1.0	251	155	93.1	265			
	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	251	155	93.1	265			
	Ammonia, Total (as N) (mg/L)	<0.0050	4.61	0.469	<0.0050	0.0165			
	Chloride (Cl) (mg/L)	<0.50	<2.5 <sup>DLA</sup>	<2.5 <sup>DLA</sup>	<0.50	<1.0 <sup>DLA</sup>			
	Fluoride (F) (mg/L)	<0.020	<0.10 <sup>DLA</sup>	0.23	0.046	0.168 <sup>DLA</sup>			
	Nitrate (as N) (mg/L)	<0.0050	0.867	0.196	0.176	<0.010 <sup>DLA</sup>			
	Nitrite (as N) (mg/L)	<0.0010	0.0124	<0.0050 <sup>DLA</sup>	<0.0010	<0.0020 <sup>DLA</sup>			
	Sulfate (SO4) (mg/L)	<0.30	710	1020	30.6	410			
	Anion Sum (meq/L)	<0.10	19.8	24.3	2.51	13.8			
	Cation Sum (meq/L)	<0.10	20.8	24.0	2.65	14.2			
	Cation - Anion Balance (%)	-90.9	2.4	-0.7	2.6	1.3			
	<b>Cyanides</b>	Cyanide, Weak Acid Diss (mg/L)	<0.0050	0.0152	<0.0050	<0.0050	<0.0050		
Cyanide, Total (mg/L)		<0.0050	0.0669	<0.0050	<0.0050	<0.0050			
Cyanate (mg/L)		<0.20	1.08	0.97	<0.20	<0.20			
Thiocyanate (SCN) (mg/L)		<0.50	4.35	<0.50	<0.50	<0.50			
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	<0.0030	0.0170	0.0225	0.0149	0.0038			
	Antimony (Sb)-Total (mg/L)	<0.00010	0.00054	0.0438	0.00036	0.0105			
	Arsenic (As)-Total (mg/L)	<0.00010	0.0682	0.146	0.00125	0.0419			
	Barium (Ba)-Total (mg/L)	<0.000050	0.0618	0.0216	0.0741	0.0121			
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020	<0.000040 <sup>DLA</sup>	<0.000020	<0.000020			
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.00010 <sup>DLA</sup>	<0.000050	<0.000050			
	Boron (B)-Total (mg/L)	<0.010	0.059	0.110	<0.010	<0.010			
	Cadmium (Cd)-Total (mg/L)	<0.0000050	0.000648	0.00199	0.0000154	0.00202			
	Calcium (Ca)-Total (mg/L)	<0.050	259	346	32.2	183			
	Chromium (Cr)-Total (mg/L)	<0.00010	0.00065	<0.00020	0.00013	0.00010			
	Cobalt (Co)-Total (mg/L)	<0.00010	0.00933	0.00083	<0.00010	0.00087			
	Copper (Cu)-Total (mg/L)	<0.00050	0.00390	0.0381	0.00103	<0.00050			
	Iron (Fe)-Total (mg/L)	<0.010	15.4	0.265	0.029	0.378			
	Lead (Pb)-Total (mg/L)	<0.000050	0.000065	0.00896	<0.000050	<0.000050			
	Lithium (Li)-Total (mg/L)	<0.0010	<0.0010	0.0120	<0.0010	0.0091			

\* 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	L1715452-6	L1715452-7	L1715452-8	L1715452-9	L1715452-10
					Water	Water	Water	Water	Water
		15-DEC-15	10:05	WQ-DC-DX+105	15-DEC-15	15-DEC-15	15-DEC-15	14-DEC-15	14-DEC-15
					13:50	13:50	14:20	14:25	16:55
					WQ-DC-DX+105	WQ-VC-DBC	WQ-VC-U	TRAVEL BLANK	WQ-DC-V
Grouping	Analyte								
<b>WATER</b>									
<b>Physical Tests</b>	Conductivity (uS/cm)	1180	230	229	<2.0	1610			
	Hardness (as CaCO3) (mg/L)	699	118	117	<0.50	898			
	pH (pH)	7.41	7.66	7.65	5.58	7.70			
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	22.0			
	Total Dissolved Solids (mg/L)	821	121	121	<1.0	1210			
<b>Anions and Nutrients</b>	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	263	91.0	93.0	<1.0	252			
	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)	263	91.0	93.0	<1.0	252			
	Ammonia, Total (as N) (mg/L)	0.0167	<0.0050	<0.0050	<0.0050	3.93			
	Chloride (Cl) (mg/L)	<1.0 <sup>DLA</sup>	<0.50	<0.50	<0.50	<2.5 <sup>DLA</sup>			
	Fluoride (F) (mg/L)	0.171	0.045	0.043	<0.020	<0.10 <sup>DLA</sup>			
	Nitrate (as N) (mg/L)	<0.010 <sup>DLA</sup>	0.186	0.187	<0.0050	0.482			
	Nitrite (as N) (mg/L)	<0.0020 <sup>DLA</sup>	<0.0010	<0.0010	<0.0010	0.0102			
	Sulfate (SO4) (mg/L)	412	21.1	20.9	<0.30	689			
	Anion Sum (meq/L)	13.8	2.27	2.31	<0.10	19.4			
	Cation Sum (meq/L)	14.3	2.48	2.47	<0.10	20.1			
	Cation - Anion Balance (%)	1.8	4.4	3.4	0.0	1.8			
	<b>Cyanides</b>	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0180		
Cyanide, Total (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050	0.0404			
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	2.54			
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.0038	0.0095	0.0109	<0.0030	0.0974			
	Antimony (Sb)-Total (mg/L)	0.0102	0.00011	<0.00010	<0.00010	0.00038			
	Arsenic (As)-Total (mg/L)	0.0412	0.00029	0.00027	<0.00010	0.0484			
	Barium (Ba)-Total (mg/L)	0.0114	0.0807	0.0784	<0.000050	0.0737			
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020			
	Bismuth (Bi)-Total (mg/L)	<0.000050	0.000056	<0.000050	<0.000050	<0.000050			
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	0.050			
	Cadmium (Cd)-Total (mg/L)	0.00210	0.0000220	0.0000206	<0.000050	0.000224			
	Calcium (Ca)-Total (mg/L)	179	30.8	29.6	<0.050	249			
	Chromium (Cr)-Total (mg/L)	<0.00010	0.00014	0.00013	0.00012 <sup>RRV</sup>	0.00062			
	Cobalt (Co)-Total (mg/L)	0.00086	<0.00010	<0.00010	<0.00010	0.00693			
	Copper (Cu)-Total (mg/L)	<0.00050	0.00098	0.00092	<0.00050	0.00186			
	Iron (Fe)-Total (mg/L)	0.381	0.021	0.020	<0.010	6.91			
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000158			
	Lithium (Li)-Total (mg/L)	0.0092	<0.0010	<0.0010	<0.0010	<0.0010			

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1715452-11			
		Water			
		15-DEC-15			
		12:35			
		WQ-VC-UMN			
Grouping	Analyte				
<b>WATER</b>					
<b>Physical Tests</b>	Conductivity (uS/cm)	255			
	Hardness (as CaCO3) (mg/L)	127			
	pH (pH)	7.87			
	Total Suspended Solids (mg/L)	<3.0			
	Total Dissolved Solids (mg/L)	137			
<b>Anions and Nutrients</b>	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	96.2			
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0			
	Alkalinity, Total (as CaCO3) (mg/L)	96.2			
	Ammonia, Total (as N) (mg/L)	<0.0050			
	Chloride (Cl) (mg/L)	<0.50			
	Fluoride (F) (mg/L)	0.046			
	Nitrate (as N) (mg/L)	0.173			
	Nitrite (as N) (mg/L)	<0.0010			
	Sulfate (SO4) (mg/L)	30.5			
	Anion Sum (meq/L)	2.57			
	Cation Sum (meq/L)	2.68			
	Cation - Anion Balance (%)	2.1			
	<b>Cyanides</b>	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			
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.0204			
	Antimony (Sb)-Total (mg/L)	0.00027			
	Arsenic (As)-Total (mg/L)	0.00138			
	Barium (Ba)-Total (mg/L)	0.0752			
	Beryllium (Be)-Total (mg/L)	<0.000020			
	Bismuth (Bi)-Total (mg/L)	<0.000050			
	Boron (B)-Total (mg/L)	<0.010			
	Cadmium (Cd)-Total (mg/L)	0.0000174			
	Calcium (Ca)-Total (mg/L)	32.8			
	Chromium (Cr)-Total (mg/L)	0.00011			
	Cobalt (Co)-Total (mg/L)	<0.00010			
	Copper (Cu)-Total (mg/L)	0.00102			
	Iron (Fe)-Total (mg/L)	0.041			
	Lead (Pb)-Total (mg/L)	0.000067			
	Lithium (Li)-Total (mg/L)	<0.0010			

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1715452-1	L1715452-2	L1715452-3	L1715452-4	L1715452-5
		Description	Water	Water	Water	Water	Water
		Sampled Date	14-DEC-15	14-DEC-15	14-DEC-15	14-DEC-15	15-DEC-15
		Sampled Time	14:25	17:40	18:15	13:55	10:30
		Client ID	FIELD BLANK	WQ-SEEP	WQ-TP	WQ-VC-R+150	WQ-DC-DX+105-R
Grouping	Analyte						
<b>WATER</b>							
<b>Total Metals</b>	Magnesium (Mg)-Total (mg/L)	<0.10	56.6	65.1	10.6	61.8	
	Manganese (Mn)-Total (mg/L)	<0.00010	6.87	0.890	0.0263	1.36	
	Mercury (Hg)-Total (mg/L)	<0.0000050	0.0000054	0.0000104	<0.0000050	<0.0000050	
	Molybdenum (Mo)-Total (mg/L)	<0.000050	0.00103	0.00179	0.000404	0.000405	
	Nickel (Ni)-Total (mg/L)	<0.00050	0.00429	0.0021	<0.00050	0.00185	
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050	
	Potassium (K)-Total (mg/L)	<0.10	6.56	22.5	0.82	3.65	
	Selenium (Se)-Total (mg/L)	<0.000050	0.000274	<0.00010 <sup>DLA</sup>	<0.000050	<0.000050	
	Silicon (Si)-Total (mg/L)	<0.050	7.49	4.18	6.08	6.58	
	Silver (Ag)-Total (mg/L)	<0.000010	0.000034	0.000191	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	<0.050	31.7	21.3	2.85	4.71	
	Strontium (Sr)-Total (mg/L)	<0.00020	0.785	0.933	0.314	0.449	
	Sulfur (S)-Total (mg/L)	<0.50	238	340	10.4	144	
	Thallium (Tl)-Total (mg/L)	<0.000010	0.000010	0.000245 <sup>DLA</sup>	<0.000010	0.000095	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010 <sup>DLM</sup>	<0.00020 <sup>DLA</sup>	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.00030	<0.00021 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>	<0.00030	<0.00030	
	Uranium (U)-Total (mg/L)	<0.000010	0.00193	0.00164 <sup>DLA</sup>	0.000706	0.00446	
	Vanadium (V)-Total (mg/L)	<0.00050	0.00239	<0.0010 <sup>DLA</sup>	<0.00050	<0.00050	
	Zinc (Zn)-Total (mg/L)	<0.0030	0.112	0.217 <sup>DLA</sup>	<0.0030	0.820	
	Zirconium (Zr)-Total (mg/L)	<0.00030	0.00067	<0.00060 <sup>DLA</sup>	<0.00030	<0.00030	
<b>Dissolved Metals</b>	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	0.0113	0.0045	0.0055	<0.0010	
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	0.00051	0.0416	0.00033	0.0102	
	Arsenic (As)-Dissolved (mg/L)	<0.00010	0.0453	0.107	0.00115	0.0195	
	Barium (Ba)-Dissolved (mg/L)	<0.000050	0.0589	0.0204 <sup>DLA</sup>	0.0738	0.0113	
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000040 <sup>DLA</sup>	<0.000020	<0.000020	
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.00010 <sup>DLA</sup>	<0.000050	<0.000050	
	Boron (B)-Dissolved (mg/L)	<0.010	0.054	0.101	<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	0.000488	0.00178	0.0000097	0.000793	
	Calcium (Ca)-Dissolved (mg/L)	<0.050	265	344 <sup>DLA</sup>	32.7	179	
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00047	<0.00020 <sup>DLA</sup>	<0.00010	<0.00010	
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.00928	0.00076	<0.00010	0.00083	
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.00234	0.0336	0.00093	<0.00020	
	Iron (Fe)-Dissolved (mg/L)	<0.010	13.7	0.048	0.013	0.232	
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	0.00167	<0.000050	<0.000050	
	Lithium (Li)-Dissolved (mg/L)	<0.0010	<0.0010	0.0107	<0.0010	0.0091	

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1715452-6	L1715452-7	L1715452-8	L1715452-9	L1715452-10
					Water	Water	Water	Water	Water
		15-DEC-15	10:05	WQ-DC-DX+105	15-DEC-15	15-DEC-15	15-DEC-15	14-DEC-15	14-DEC-15
					10:05	13:50	14:20	14:25	16:55
					WQ-DC-DX+105	WQ-VC-DBC	WQ-VC-U	TRAVEL BLANK	WQ-DC-V
Grouping	Analyte								
<b>WATER</b>									
<b>Total Metals</b>	Magnesium (Mg)-Total (mg/L)	60.1	9.97	9.60	<0.10	63.4			
	Manganese (Mn)-Total (mg/L)	1.30	0.0698	0.0678	<0.00010	5.94			
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Total (mg/L)	0.000397	0.000461	0.000402	<0.000050	0.000885			
	Nickel (Ni)-Total (mg/L)	0.00171	<0.00050	<0.00050	<0.00050	0.00296			
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050			
	Potassium (K)-Total (mg/L)	3.56	0.69	0.66	<0.10	6.14			
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000181			
	Silicon (Si)-Total (mg/L)	6.37	6.04	5.85	<0.050	7.29			
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	0.000020			
	Sodium (Na)-Total (mg/L)	4.52	2.57	2.52	<0.050	29.5			
	Strontium (Sr)-Total (mg/L)	0.436	0.335	0.323	<0.00020	0.794			
	Sulfur (S)-Total (mg/L)	140	7.49	7.20	<0.50	232			
	Thallium (Tl)-Total (mg/L)	0.000094	<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	<0.00030	<0.00030	<0.00030	0.00545			
	Uranium (U)-Total (mg/L)	0.00440	0.000743	0.000721	<0.000010	0.00157			
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	0.00166			
	Zinc (Zn)-Total (mg/L)	0.780	<0.0030	<0.0030	<0.0030	0.0430			
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	0.00036			
<b>Dissolved Metals</b>	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	0.0058	0.0060		0.0084			
	Antimony (Sb)-Dissolved (mg/L)	0.0102	<0.00010	<0.00010		0.00034			
	Arsenic (As)-Dissolved (mg/L)	0.0194	0.00024	0.00022		0.0362			
	Barium (Ba)-Dissolved (mg/L)	0.0115	0.0796	0.0796		0.0697			
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020		<0.000020			
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050		<0.000050			
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010		0.045			
	Cadmium (Cd)-Dissolved (mg/L)	0.000781	0.0000223	0.0000199		0.000158			
	Calcium (Ca)-Dissolved (mg/L)	181	30.9	30.7		255			
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		0.00031			
	Cobalt (Co)-Dissolved (mg/L)	0.00083	<0.00010	<0.00010		0.00653			
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.00083	0.00088		0.00117			
	Iron (Fe)-Dissolved (mg/L)	0.230	<0.010	0.011		5.11			
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050		<0.000050			
	Lithium (Li)-Dissolved (mg/L)	0.0091	<0.0010	<0.0010		<0.0010			

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1715452-11			
		Water			
		15-DEC-15			
		12:35			
		WQ-VC-UMN			
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Magnesium (Mg)-Total (mg/L)	10.6			
	Manganese (Mn)-Total (mg/L)	0.0566			
	Mercury (Hg)-Total (mg/L)	<0.0000050			
	Molybdenum (Mo)-Total (mg/L)	0.000390			
	Nickel (Ni)-Total (mg/L)	<0.00050			
	Phosphorus (P)-Total (mg/L)	<0.050			
	Potassium (K)-Total (mg/L)	0.76			
	Selenium (Se)-Total (mg/L)	<0.000050			
	Silicon (Si)-Total (mg/L)	6.08			
	Silver (Ag)-Total (mg/L)	<0.000010			
	Sodium (Na)-Total (mg/L)	2.95			
	Strontium (Sr)-Total (mg/L)	0.300			
	Sulfur (S)-Total (mg/L)	10.5			
	Thallium (Tl)-Total (mg/L)	<0.000010			
	Tin (Sn)-Total (mg/L)	<0.00010			
	Titanium (Ti)-Total (mg/L)	0.00047			
	Uranium (U)-Total (mg/L)	0.000692			
	Vanadium (V)-Total (mg/L)	<0.00050			
	Zinc (Zn)-Total (mg/L)	<0.0030			
	Zirconium (Zr)-Total (mg/L)	<0.00030			
<b>Dissolved Metals</b>	Dissolved Mercury Filtration Location	FIELD			
	Dissolved Metals Filtration Location	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	0.0051			
	Antimony (Sb)-Dissolved (mg/L)	0.00028			
	Arsenic (As)-Dissolved (mg/L)	0.00130			
	Barium (Ba)-Dissolved (mg/L)	0.0758			
	Beryllium (Be)-Dissolved (mg/L)	<0.000020			
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050			
	Boron (B)-Dissolved (mg/L)	<0.010			
	Cadmium (Cd)-Dissolved (mg/L)	0.0000196			
	Calcium (Ca)-Dissolved (mg/L)	33.2			
	Chromium (Cr)-Dissolved (mg/L)	<0.00010			
	Cobalt (Co)-Dissolved (mg/L)	<0.00010			
	Copper (Cu)-Dissolved (mg/L)	0.00094			
	Iron (Fe)-Dissolved (mg/L)	0.018			
	Lead (Pb)-Dissolved (mg/L)	<0.000050			
	Lithium (Li)-Dissolved (mg/L)	<0.0010			

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1715452-1	L1715452-2	L1715452-3	L1715452-4	L1715452-5
					Water	Water	Water	Water	Water
		14-DEC-15	14-DEC-15		14-DEC-15	14-DEC-15	14-DEC-15	14-DEC-15	15-DEC-15
		14:25	17:40		18:15	13:55	10:30		
		FIELD BLANK	WQ-SEEP		WQ-TP	WQ-VC-R+150	WQ-DC-DX+105-R		
Grouping	Analyte								
<b>WATER</b>									
<b>Dissolved Metals</b>	Magnesium (Mg)-Dissolved (mg/L)	<0.10	57.3	64.3	10.6	59.7			
	Manganese (Mn)-Dissolved (mg/L)	<0.00010	6.86	0.854	0.0245	1.28			
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	0.000963	0.00169	0.000377	0.000349			
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00414	0.0019	<0.00050	0.00163			
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050			
	Potassium (K)-Dissolved (mg/L)	<0.10	6.59	22.1	0.79	3.47			
	Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000231	<0.00010 <sup>DLA</sup>	<0.000050	<0.000050			
	Silicon (Si)-Dissolved (mg/L)	<0.050	7.48	4.03	6.10	6.33			
	Silver (Ag)-Dissolved (mg/L)	<0.000010	0.000010	0.000053	<0.000010	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	<0.050	31.9	20.6	2.86	4.50			
	Strontium (Sr)-Dissolved (mg/L)	<0.00020	0.777	0.899	0.306	0.425			
	Sulfur (S)-Dissolved (mg/L)	<0.50	231	328	10.4	137			
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	0.000238	<0.000010	0.000088			
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010	<0.00010			
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	0.00095	<0.00060 <sup>DLA</sup>	<0.00030	<0.00030			
	Uranium (U)-Dissolved (mg/L)	<0.000010	0.00190	0.00153	0.000673	0.00420			
	Vanadium (V)-Dissolved (mg/L)	<0.00050	0.00156	<0.0010 <sup>DLA</sup>	<0.00050	<0.00050			
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	0.109	0.205	0.0013	0.767			
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	0.00063	<0.00060 <sup>DLA</sup>	<0.00030	<0.00030			

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



## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1715452-6	L1715452-7	L1715452-8	L1715452-9	L1715452-10
		Description	Water	Water	Water	Water	Water
		Sampled Date	15-DEC-15	15-DEC-15	15-DEC-15	14-DEC-15	14-DEC-15
		Sampled Time	10:05	13:50	14:20	14:25	16:55
		Client ID	WQ-DC-DX+105	WQ-VC-DBC	WQ-VC-U	TRAVEL BLANK	WQ-DC-V
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Magnesium (Mg)-Dissolved (mg/L)		59.9	9.84	9.80		63.6
	Manganese (Mn)-Dissolved (mg/L)		1.28	0.0674	0.0663		5.79
	Mercury (Hg)-Dissolved (mg/L)		<0.0000050	<0.0000050	<0.0000050		<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)		0.000356	0.000396	0.000401		0.000815
	Nickel (Ni)-Dissolved (mg/L)		0.00159	<0.00050	<0.00050		0.00276
	Phosphorus (P)-Dissolved (mg/L)		<0.050	<0.050	<0.050		<0.050
	Potassium (K)-Dissolved (mg/L)		3.46	0.65	0.66		6.10
	Selenium (Se)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050		0.000180
	Silicon (Si)-Dissolved (mg/L)		6.35	6.01	6.02		7.21
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010		<0.000010
	Sodium (Na)-Dissolved (mg/L)		4.56	2.55	2.58		28.7
	Strontium (Sr)-Dissolved (mg/L)		0.423	0.325	0.319		0.783
	Sulfur (S)-Dissolved (mg/L)		138	7.31	7.20		228
	Thallium (Tl)-Dissolved (mg/L)		0.000087	<0.000010	<0.000010		<0.000010
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010		<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030		<0.0012 <sup>DLM</sup>
	Uranium (U)-Dissolved (mg/L)		0.00420	0.000697	0.000680		0.00150
	Vanadium (V)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050		0.00089
	Zinc (Zn)-Dissolved (mg/L)		0.770	<0.0010	0.0016		0.0401
	Zirconium (Zr)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030		0.00038

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1715452-11			
<b>Grouping</b>	<b>Analyte</b>				
<b>WATER</b>					
<b>Dissolved Metals</b>	Magnesium (Mg)-Dissolved (mg/L)	10.6			
	Manganese (Mn)-Dissolved (mg/L)	0.0523			
	Mercury (Hg)-Dissolved (mg/L)	<0.000050			
	Molybdenum (Mo)-Dissolved (mg/L)	0.000382			
	Nickel (Ni)-Dissolved (mg/L)	<0.00050			
	Phosphorus (P)-Dissolved (mg/L)	<0.050			
	Potassium (K)-Dissolved (mg/L)	0.74			
	Selenium (Se)-Dissolved (mg/L)	<0.000050			
	Silicon (Si)-Dissolved (mg/L)	6.09			
	Silver (Ag)-Dissolved (mg/L)	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	2.95			
	Strontium (Sr)-Dissolved (mg/L)	0.322			
	Sulfur (S)-Dissolved (mg/L)	10.3			
	Thallium (Tl)-Dissolved (mg/L)	<0.000010			
	Tin (Sn)-Dissolved (mg/L)	<0.00010			
	Titanium (Ti)-Dissolved (mg/L)	<0.00030			
	Uranium (U)-Dissolved (mg/L)	0.000713			
	Vanadium (V)-Dissolved (mg/L)	<0.00050			
	Zinc (Zn)-Dissolved (mg/L)	0.0019			
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030			

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

## Reference Information

## QC Samples with Qualifiers &amp; Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Duplicate	Bismuth (Bi)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Duplicate	Chromium (Cr)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Duplicate	Selenium (Se)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Duplicate	Silver (Ag)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Duplicate	Thallium (Tl)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Duplicate	Tin (Sn)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Duplicate	Titanium (Ti)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Duplicate	Vanadium (V)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Duplicate	Zirconium (Zr)-Dissolved	DLA	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Aluminum (Al)-Total	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Total	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Copper (Cu)-Total	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Total	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Total	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Total	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Total	MS-B	L1715452-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9

## Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
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**
<b>ALK-TITR-VA</b>	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.			
<b>BE-D-L-CCMS-VA</b>	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.			

## Reference Information

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.

**CL-IC-N-WR** 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.

**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  
 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.

**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.

**F-IC-N-WR** Water Fluoride in Water by IC EPA 300.1 (mod)  
 Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**HARDNESS-CALC-VA** Water Hardness APHA 2340B  
 Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO<sub>3</sub> 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.

**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-DIS-LOW-ICP-VA** Water Dissolved Metals in Water by ICPOES EPA 3005A/6010B  
 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 filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

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

## Reference Information

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.

**MET-TOT-LOW-ICP-VA**      Water      Total Metals in Water by ICPOES      EPA 3005A/6010B

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 procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**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.

**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-WR**      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-WR**      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.

**S-DIS-ICP-VA**      Water      Dissolved Sulfur in Water by ICPOES      EPA SW-846 3005A/6010B

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 procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**S-TOT-ICP-VA**      Water      Total Sulfur in Water by ICPOES      EPA SW-846 3005A/6010B

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 procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

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

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

**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".

**TSS-MAN-WR**      Water      Total Suspended Solids by Gravimetric      APHA 2540 D

## Reference Information

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

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

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

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

### Chain of Custody Numbers:

1                                  2

### GLOSSARY OF REPORT TERMS

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

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

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

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

*mg/L - milligrams per litre.*

*< - Less than.*

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

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

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

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

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



Report To		Report Format / Distribution			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)																																																	
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Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Email 1 or Fax: sjenner@edynamics.com			<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td>P</td><td>P</td><td>P</td><td>P</td><td>P</td><td>F/P</td><td></td><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>ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA</td> <td>ANIONS-ALL-IC-WR, TSS-MAN-WR</td> <td>CN-WAD-CFA-VA, CN-T-CFA-VA</td> <td>CN-CNO-WT</td> <td>CN-SCN-VA</td> <td>NHS-F-VA</td> <td>MET-T-BCMDG-VA</td> <td>MET-D-BCMDG-VA</td> <td>IONBALANG-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> </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	NHS-F-VA	MET-T-BCMDG-VA	MET-D-BCMDG-VA	IONBALANG-VA, TDS-CALC-VA										
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