ENVIRONMENTAL DYNAMICS INC.
ATTN: Meghan Marjanovic
2195 - 2nd Ave
Whitehorse YT Y1A 3A2

Date Received: 21-APR-15
Report Date: 01-MAY-15 11:53 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1601895

Project P.O. #: NOT SUBMITTED
Job Reference: MOUNT NANSEN 15-Y-0146
C of C Numbers: 1
Legal Site Desc:

Can Dang
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1601895-1	L1601895-2	L1601895-3	L1601895-4	
	Description	Water	Water	Water	Water	
	Sampled Date	21-APR-15	21-APR-15	21-APR-15	21-APR-15	
	Sampled Time	08:43	08:50	09:00	10:30	
	Client ID	0146-150421-016	0146-150421-017	0146-150421-018	0146-150421-019	
Grouping	**Analyte**					
WATER						
Physical Tests	Colour, True (CU)				<5.0	
	Conductivity (uS/cm)	2000	1910	1770	372	
	Hardness (as CaCO3) (mg/L)	1350	1300	1310	198	
	pH (pH)	8.12	8.09	8.13	7.66	
	Total Suspended Solids (mg/L)	<3.0	3.3	<3.0		
	Total Dissolved Solids (mg/L)	1720	1700	1680	218	
	Turbidity (NTU)				<0.10	
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	218	235	237		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0		
	Alkalinity, Total (as CaCO3) (mg/L)	218	235	237	181	
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050		
	Chloride (Cl) (mg/L)	<2.5 DLA	<2.5 DLA	<2.5 DLA	<0.50	
	Fluoride (F) (mg/L)	0.30	0.24	0.26	0.092	
	Nitrate (as N) (mg/L)	0.106	0.079	0.096	0.135	
	Nitrite (as N) (mg/L)	<0.0050 DLA	<0.0050 DLA	<0.0050 DLA	<0.0010	
	Sulfate (SO4) (mg/L)	1090	1080	1060	37.0	
	Anion Sum (meq/L)	27.0	27.3	26.8	4.40	
	Cation Sum (meq/L)	27.8	26.7	26.9	4.19	
	Cation - Anion Balance (%)	1.5	-1.0	0.2	-2.5	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0109	0.0112	<0.0060 DLA	<0.010	
	Antimony (Sb)-Total (mg/L)	0.00338	0.00297	0.00319	<0.00050	
	Arsenic (As)-Total (mg/L)	0.0101	0.0117	0.00768	0.00043	
	Barium (Ba)-Total (mg/L)	0.0154	0.0140	0.0153	0.089	
	Beryllium (Be)-Total (mg/L)	<0.000040 DLA	<0.000040 DLA	<0.000040 DLA		
	Bismuth (Bi)-Total (mg/L)	<0.00010 DLA	<0.00010 DLA	<0.00010 DLA		
	Boron (B)-Total (mg/L)	<0.020 DLA	<0.020 DLA	<0.020 DLA	<0.10	
	Cadmium (Cd)-Total (mg/L)	0.00402	0.00424	0.00362	<0.00020	
	Calcium (Ca)-Total (mg/L)	373	352	347	46.3	
	Chromium (Cr)-Total (mg/L)	<0.00020 DLA	<0.00020 DLA	<0.00020 DLA	<0.0020	
	Cobalt (Co)-Total (mg/L)	<0.00020 DLA	0.00029	<0.00020 DLA		
	Copper (Cu)-Total (mg/L)	0.0036	0.0033	0.0028	<0.0010	
	Iron (Fe)-Total (mg/L)	0.030	0.050	0.029	<0.030	
	Lead (Pb)-Total (mg/L)	0.00025	0.00032	<0.00010 DLA	0.00061	
	Lithium (Li)-Total (mg/L)	0.0112	0.0105	0.0104		
	Magnesium (Mg)-Total (mg/L)	97.6	95.1	95.4	20.0	
	Manganese (Mn)-Total (mg/L)	0.133	0.328	0.107	<0.0020	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1601895-1	L1601895-2	L1601895-3	L1601895-4	
	Description	Water	Water	Water	Water	
	Sampled Date	21-APR-15	21-APR-15	21-APR-15	21-APR-15	
	Sampled Time	08:43	08:50	09:00	10:30	
	Client ID	0146-150421-016	0146-150421-017	0146-150421-018	0146-150421-019	
Grouping	**Analyte**					
WATER						
Total Metals	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.00020	
	Molybdenum (Mo)-Total (mg/L)	0.00014	0.00015	0.00013		
	Nickel (Ni)-Total (mg/L)	<0.0010 DLA	<0.0010 DLA	<0.0010 DLA		
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050		
	Potassium (K)-Total (mg/L)	4.35	3.96	4.12	0.92	
	Rubidium (Rb)-Total (mg/L)	0.00749	0.00701	0.00698		
	Selenium (Se)-Total (mg/L)	<0.00010 DLA	<0.00010 DLA	<0.00010 DLA	<0.0010	
	Silicon (Si)-Total (mg/L)	4.61	4.17	4.30		
	Silver (Ag)-Total (mg/L)	<0.000020 DLA	<0.000020 DLA	<0.000020 DLA		
	Sodium (Na)-Total (mg/L)	15.6	14.5	14.4	4.8	
	Strontium (Sr)-Total (mg/L)	1.32	1.30	1.28		
	Sulfur (S)-Total (mg/L)	370	355	353		
	Thallium (Tl)-Total (mg/L)	0.000073	0.000069	0.000067		
	Tin (Sn)-Total (mg/L)	<0.00020 DLA	<0.00020 DLA	<0.00020 DLA		
	Titanium (Ti)-Total (mg/L)	<0.00060 DLA	<0.00060 DLA	<0.00060 DLA		
	Uranium (U)-Total (mg/L)	0.00510	0.00488	0.00495	0.00192	
	Vanadium (V)-Total (mg/L)	<0.0010 DLA	<0.0010 DLA	<0.0010 DLA		
	Zinc (Zn)-Total (mg/L)	0.646	0.608	0.595	<0.050	
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD		
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD		
	Aluminum (Al)-Dissolved (mg/L)	<0.0020 DLA	0.0027	0.0028		
	Antimony (Sb)-Dissolved (mg/L)	0.00313	0.00289	0.00321		
	Arsenic (As)-Dissolved (mg/L)	0.00771	0.00833	0.00769		
	Barium (Ba)-Dissolved (mg/L)	0.0148	0.0138	0.0149		
	Beryllium (Be)-Dissolved (mg/L)		<0.000040 DLA	<0.000040 DLA		
	Bismuth (Bi)-Dissolved (mg/L)	<0.00010 DLA	<0.00010 DLA	<0.00010 DLA		
	Boron (B)-Dissolved (mg/L)	<0.020 DLA	<0.020 DLA	<0.020 DLA		
	Cadmium (Cd)-Dissolved (mg/L)	0.00357	0.00416	0.00364		
	Calcium (Ca)-Dissolved (mg/L)	378	354	361		
	Chromium (Cr)-Dissolved (mg/L)	<0.00020 DLA	<0.00020 DLA	<0.00020 DLA		
	Cobalt (Co)-Dissolved (mg/L)	<0.00020 DLA	0.00022	<0.00020 DLA		
	Copper (Cu)-Dissolved (mg/L)	0.00296	0.00276	0.00293		
	Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	<0.010		
	Lead (Pb)-Dissolved (mg/L)	<0.00010 DLA	<0.00010 DLA	<0.00010 DLA		
	Lithium (Li)-Dissolved (mg/L)	0.0105	0.0102	0.0111		
	Magnesium (Mg)-Dissolved (mg/L)	99.5	101	98.5		
	Manganese (Mn)-Dissolved (mg/L)	0.112	0.282	0.107		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1601895-1	L1601895-2	L1601895-3	L1601895-4	
	Description	Water	Water	Water	Water	
	Sampled Date	21-APR-15	21-APR-15	21-APR-15	21-APR-15	
	Sampled Time	08:43	08:50	09:00	10:30	
	Client ID	0146-150421-016	0146-150421-017	0146-150421-018	0146-150421-019	
Grouping	**Analyte**					
WATER						
Dissolved Metals	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050		
	Molybdenum (Mo)-Dissolved (mg/L)	0.00014	0.00013	0.00014		
	Nickel (Ni)-Dissolved (mg/L)	<0.0010 DLA	<0.0010 DLA	<0.0010 DLA		
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050		
	Potassium (K)-Dissolved (mg/L)	4.43	4.03	4.17		
	Selenium (Se)-Dissolved (mg/L)	<0.00010 DLA	<0.00010 DLA	<0.00010 DLA		
	Silicon (Si)-Dissolved (mg/L)	4.66	4.22	4.47		
	Silver (Ag)-Dissolved (mg/L)	<0.000020 DLA	<0.000020 DLA	<0.000020 DLA		
	Sodium (Na)-Dissolved (mg/L)	15.1	14.1	14.3		
	Strontium (Sr)-Dissolved (mg/L)	1.21	1.24	1.29		
	Sulfur (S)-Dissolved (mg/L)	358	358	343		
	Thallium (Tl)-Dissolved (mg/L)	0.000066	0.000072	0.000065		
	Tin (Sn)-Dissolved (mg/L)	<0.00020 DLA	<0.00020 DLA	<0.00020 DLA		
	Titanium (Ti)-Dissolved (mg/L)	<0.00060 DLA	<0.00060 DLA	<0.00060 DLA		
	Uranium (U)-Dissolved (mg/L)	0.00491	0.00498	0.00495		
	Vanadium (V)-Dissolved (mg/L)	<0.0010 DLA	<0.0010 DLA	<0.0010 DLA		
	Zinc (Zn)-Dissolved (mg/L)	0.592	0.593	0.597		

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Bismuth (Bi)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Boron (B)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Chromium (Cr)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Cobalt (Co)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Lead (Pb)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Nickel (Ni)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Selenium (Se)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Silver (Ag)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Tin (Sn)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Titanium (Ti)-Dissolved	DLA	L1601895-1, -2, -3
Duplicate	Vanadium (V)-Dissolved	DLA	L1601895-1, -2, -3
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1601895-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L1601895-1, -2, -3
Matrix Spike	Sulfur (S)-Total	MS-B	L1601895-1, -2, -3

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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-PCT-VA	Water	Alkalinity by Auto. 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.

ALK-PCT-VA	Water	Alkalinity by Auto. 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.

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.

COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength

Reference Information

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-MAN-WR Water Conductivity by Meter APHA 2510 (B)

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

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 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 Mercury in Water by CVAFS EPA 245.7

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:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+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)

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-ICP-VA Water Total Metals 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 (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

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

Reference Information

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).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

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 - mass spectrometry (EPA Method 6020A).

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-MAN-WR Water pH by Meter APHA 4500-H (B)

"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."

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

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.

Reference Information

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.

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
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

1

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.

Pit + DW

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L1601895-COFC

COC Number: 14 -

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Report To		Report Format / Dis		Turnaround Time (TAT) is not available for all tests)
Company:	EDI	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Meghan Marjanovic	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	2195 - 2nd Avenue Whitehorse, YT Y1A 3T8	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
		Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	867-393-4882	Email 1 or Fax	mmarjanovic@edynamics.com	Specify Date Required for E2,E or P:
		Email 2		

Invoice To		Invoice Distribution		Analysis Request
	Same as Report To ☑ Yes ☐ No			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	
Company:	EDI	Email 1 or Fax	sjenner@edynamics.com	
Contact:	S Jenner	Email 2	mmarjanovic@edynamics.com	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q49311 and Q49312	Approver ID:	Cost Center:
Job #:	MOUNT NANSEN 15-Y-0146	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): [redacted]

ALS Contact: Sean Sluggett | Sampler: DH, DS, BSm

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,PH-PCT-VA,EC-PCT-VA	ANIONS-ALL-IC-WR,TSS-MAN-WR	NH3-F-VA	MET-T-BCMDG-VA	MET-D-BCMDG-VA	TDS-CALC-VA,IONBLANCE-VA		FULL-TOT-DW-WR					Number of Containers
							P	P	F/P								
[redacted]	0146-150421 - 016	21 - April - 15	08:43	Water	R	R	R	R	R	R							6
[redacted]	0146-150421 - 017	21 - April - 15	08:50	Water	R	R	R	R	R	R							6
[redacted]	0146-150421 - 018	21 - April - 15	09:00	Water	R	R	R	R	R	R							6
[redacted]	0146-150421 - 019	21 - April - 15	10:30	Water	R	R	R	R	R	R		R					3
[redacted]																	
[redacted]																	
[redacted]																	
[redacted]																	
[redacted]																	
[redacted]																	
[redacted]																	

Short Holding Time!
Rush Processing

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [redacted] SIF Observations Yes [redacted] No [redacted]
Ice packs Yes [redacted] No [redacted] Custody seal intact Yes [redacted] No [redacted]
Cooling Initiated [redacted]

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by: [redacted]	Date: [redacted]	Time: 15:00	Received by: [redacted]	Date: 23/04/15	Time: 9:13

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS FM 0328e v09 Front/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.