AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 27-JUL-15
Report Date: 30-JUL-15 14:31 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1648210

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers:
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1648210-1	L1648210-2	L1648210-3	L1648210-4	L1648210-5
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	17-JUL-15	17-JUL-15	17-JUL-15	17-JUL-15	18-JUL-15
Sampled Time					
Client ID	WTN-1-S	WTN-2-S	WTS-1-S	WTS-2-S	NEM-1-S
Grouping / **Analyte**					
WATER					
Physical Tests					
Conductivity (uS/cm)	20.4	17.4	16.0	15.9	24.5
pH (pH)	6.83	6.81	6.78	6.78	7.03
Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Total Dissolved Solids (mg/L)	16.0	12.8	13.0	13.8	16.6
Turbidity (NTU)	0.42	0.39	0.43	0.35	0.24
Anions and Nutrients					
Alkalinity, Bicarbonate (as CaCO3) (mg/L)	4.5	4.2	4.2	4.2	7.1
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)	4.5	4.2	4.2	4.2	7.1
Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl) (mg/L)	1.94	1.22	1.06	1.06	0.53
Fluoride (F) (mg/L)	0.022	0.025	0.023	0.025	0.023
Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020	<0.0020	0.0020	<0.0020
Silicate (as SiO2) (mg/L)	0.56	0.57	0.54	0.54	<0.50
Sulfate (SO4) (mg/L)	1.39	1.24	1.20	1.22	3.19

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1648210-6	L1648210-7	L1648210-8	L1648210-9	L1648210-10
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	18-JUL-15	18-JUL-15	18-JUL-15		18-JUL-15
Sampled Time					
Client ID	NEM-2-S	MAM-1-S	MAM-2-S	DUP-JULY-AMARUQ	EB-JULY-AMARUQ
Grouping / **Analyte**					
WATER					
Physical Tests					
Conductivity (uS/cm)	24.5	22.5	22.6	15.4	<2.0
pH (pH)	7.04	6.86	6.86	6.76	5.45
Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Total Dissolved Solids (mg/L)	17.6	16.9	16.2	13.3	<3.0
Turbidity (NTU)	0.23	0.36	0.37	0.37	<0.10
Anions and Nutrients					
Alkalinity, Bicarbonate (as CaCO3) (mg/L)	7.0	4.8	5.0	3.9	<1.0
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)	7.0	4.8	5.0	3.9	<1.0
Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl) (mg/L)	0.53	1.98	1.98	1.05	<0.10
Fluoride (F) (mg/L)	0.021	0.023	0.024	0.024	<0.020
Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicate (as SiO2) (mg/L)	<0.50	0.55	0.58	0.54	<0.50
Sulfate (SO4) (mg/L)	3.19	2.10	2.11	1.21	<0.30

* 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	Fluoride (F)	DLM	L1648210-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Bromide (Br)	DLM	L1648210-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Fluoride (F)	DLM	L1648210-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nitrite (as N)	DLM	L1648210-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Nitrate (as N)	MS-B	L1648210-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Fluoride (F)	MS-B	L1648210-1, -10, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
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.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)

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

CL-L-IC-N-VA	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)

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

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

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

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

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

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

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

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

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

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.

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

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

SILICATE-COL-VA	Water	Silicate by Colourimetric analysis	APHA 4500-SiO2 E.

This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.

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.

Reference Information

TDS-LOW-VA	Water	Low Level TDS (3.0mg/L) by Gravimetric	APHA 2540C

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-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540D

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.

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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg 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.

Short Holding Time

ALS Environmental

● *Rush Processing*

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 1 of

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☐ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☐ PDF ☐ Excel ☑ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	**Client / Project Information**	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:		Quote #: Q39503	
Lab Work Order (lab use only)	L1648210-COFC	ALS Contact:	Sampler:

Sample #	(This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conventionals** see notes	TSS-Low, TDS-Low										
	WTN-1-S	17-Jul-15		Surface Water	X	X										
	WTN-2-S	17-Jul-15		Surface Water	X	X										
	WTS-1-S	17-Jul-15		Surface Water	X	X										
	WTS-2-S	17-Jul-15		Surface Water	X	X										
	NEM-1-S	18-Jul-15		Surface Water	X	X										
	NEM-2-S	18-Jul-15		Surface Water	X	X										
	MAM-1-S	18-Jul-15		Surface Water	X	X										
	MAM-2-S	18-Jul-15		Surface Water	X	X										
	DUP-JULY-AMARUQ			Surface Water	X	X										
	EB-JULY-AMARUQ	18-Jul-15		Surface Water	X	X										

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

**Conventionals includes: Alk Species, pH, EC, Turbidity, Conductivity, Anions (F, NO2, NO3, Br, SO4), low-level Chloride, Silicate, TD-P, and Ortho-PO4.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observation Yes / No ? If Yes add
Morgan Finley	20-Jul-15	9:00	Jeav	27 Jul	8:38	18.1 18.1 °C				

GENF 20.00 Front

L1648210-COFC

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Number of Containers	
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AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
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Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1648239

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers:
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1648239-1	L1648239-2	L1648239-3	L1648239-4	L1648239-5
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	19-JUL-15	19-JUL-15	19-JUL-15	19-JUL-15	19-JUL-15
Sampled Time					
Client ID	C2	C14	C17	C20	C41
Grouping / **Analyte**					
WATER					
Physical Tests					
Conductivity (uS/cm)	22.1	24.5	22.8	23.1	17.0
pH (pH)	6.92	7.13	7.07	7.12	6.91
Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	1.3
Total Dissolved Solids (mg/L)	15.0	17.7	18.4	15.4	13.3
Turbidity (NTU)	0.33	0.32	0.38	0.21	0.83
Anions and Nutrients					
Alkalinity, Bicarbonate (as CaCO3) (mg/L)	5.7	8.7	7.7	7.8	5.1
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)	5.7	8.7	7.7	7.8	5.1
Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl) (mg/L)	0.47	0.55	0.57	0.67	0.50
Fluoride (F) (mg/L)	0.063	0.034	0.046	0.039	0.043
Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0055
Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total Dissolved (mg/L)	0.0020	0.0028	0.0022	<0.0020	0.0022
Silicate (as SiO2) (mg/L)	0.64	0.59	0.76	<0.50	0.52
Sulfate (SO4) (mg/L)	3.45	1.52	1.48	1.71	1.73

* 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	Fluoride (F)	DLM	L1648239-1, -2, -3, -4, -5
Duplicate	Bromide (Br)	DLM	L1648239-1, -2, -3, -4, -5
Duplicate	Fluoride (F)	DLM	L1648239-1, -2, -3, -4, -5
Duplicate	Nitrite (as N)	DLM	L1648239-1, -2, -3, -4, -5
Matrix Spike	Nitrate (as N)	MS-B	L1648239-1, -2, -3, -4, -5
Matrix Spike	Fluoride (F)	MS-B	L1648239-1, -2, -3, -4, -5

Qualifiers for Individual Parameters Listed:

Qualifier	Description
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.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)

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

CL-L-IC-N-VA	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)

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

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

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

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

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

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

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

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

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

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.

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

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

SILICATE-COL-VA	Water	Silicate by Colourimetric analysis	APHA 4500-SiO2 E.

This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.

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.

Reference Information

TDS-LOW-VA	Water	Low Level TDS (3.0mg/L) by Gravimetric	APHA 2540C

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-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540D

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.

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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg 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.

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☐ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☐ PDF ☐ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:		Quote #: Q39503	
Lab Work Order (lab use only)	L1648239-COFC	ALS Contact:	Sampler:

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conventionals** see notes	TSS-Low, TDS-Low										
	C2	19-Jul-15		Surface Water	X	X										
	C14	19-Jul-15		Surface Water	X	X										
	C17	19-Jul-15		Surface Water	X	X										
	C20	19-Jul-15		Surface Water	X	X										
	C41	19-Jul-15		Surface Water	X	X										

Short Holding Time

● *Rush Processing*

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

**Conventionals includes: Alk Species, pH, EC, Turbidity, Conductivity, Anions (F, NO2, NO3, Br, SO4), low-level Chloride, Silicate, TD-P, and Ortho-PO4.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observatic Yes / No ? If Yes add
Morgan Finley	20-Jul-15	9:00	Jean	27 Jul	8:38	18.1 18.1 °C				

2

Number of Containers
2
2
2
2
2

ons:

SIF

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 29-JUL-15
Report Date: 07-AUG-15 12:24 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1649855

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers:
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1649855-1	L1649855-2	L1649855-3	L1649855-4	L1649855-5
	Description	OTHER	OTHER	OTHER	OTHER	OTHER
	Sampled Date	17-JUL-15	17-JUL-15	17-JUL-15	17-JUL-15	18-JUL-15
	Sampled Time					
	Client ID	WTN-1-S	WTN-2-S	WTS-1-S	WTS-2-S	NEM-1-S
Grouping	**Analyte**					
FILTER						
Plant Pigments	Chlorophyll a (ug/L)	0.320	0.251	0.282	0.284	0.148

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID				
		L1649855-6 OTHER 18-JUL-15 NEM-2-S	L1649855-7 OTHER 18-JUL-15 MAM-1-S	L1649855-8 OTHER 18-JUL-15 MAM-2-S	L1649855-9 OTHER DUP-JULY-AMARUQ	L1649855-10 OTHER 19-JUL-15 C2
FILTER						
Plant Pigments	Chlorophyll a (ug/L)	0.134	0.237	0.231	0.211	0.340

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1649855-11	L1649855-12	L1649855-13	L1649855-14	
	Description	OTHER	OTHER	OTHER	OTHER	
	Sampled Date	19-JUL-15	19-JUL-15	19-JUL-15	19-JUL-15	
	Sampled Time					
	Client ID	C14	C17	C20	C41	
Grouping	**Analyte**					
FILTER						
Plant Pigments	Chlorophyll a (ug/L)	0.370	0.359	0.209	0.360	

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CHLOROA-F-VA	Filter	Chlorophyll a by Fluorometer (Filter)	EPA 445.0

This analysis is done using procedures modified from EPA Method 445.0. Chlorophyll-a is determined by a routine acetone extraction followed with analysis by fluorometry using the non-acidification procedure. This method is not subject to interferences from chlorophyll b.

** 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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg 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.

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 1 of 2

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☐ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☐ PDF ☐ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	**Client / Project Information**	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Chlorophyl 'a'
	WTN-1-S	17-Jul-15		Other	X
	WTN-2-S	17-Jul-15		Other	X
	WTS-1-S	17-Jul-15		Other	X
	WTS-2-S	17-Jul-15		Other	X
	NEM-1-S	18-Jul-15		Other	X
	NEM-2-S	18-Jul-15		Other	X
	MAM-1-S	18-Jul-15		Other	X
	MAM-2-S	18-Jul-15		Other	X
	DUP-JULY-AMARUQ			Other	X

L1649855-COFC

Short Holding Time
Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observatic Yes / No ? If Yes add
Morgan Finley						22 °C	EC	29/7	11:59	

GENF 20.00 Front

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☐ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☐ PDF ☐ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	**Client / Project Information**	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Chlorophyl 'a'
	C2	19-Jul-15		Other	X
	C14	19-Jul-15		Other	X
	C17	19-Jul-15		Other	X
	C20	19-Jul-15		Other	X
	C41	19-Jul-15		Other	X

L1649855-COFC

Short Holding Time
Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observatic Yes / No ? If Yes add
Morgan Finley						22 °C	Ez	July 29/15	11:59	

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 29-JUL-15
Report Date: 07-AUG-15 13:40 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1649931

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers:
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1649931-1	L1649931-2	L1649931-3	L1649931-4	L1649931-5
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	17-JUL-15	17-JUL-15	17-JUL-15	17-JUL-15	18-JUL-15
Sampled Time					
Client ID	WTN-1-S	WTN-2-S	WTS-1-S	WTS-2-S	NEM-1-S
Grouping / **Analyte**					
WATER					
Physical Tests					
Conductivity (uS/cm)	7.33	6.17	5.91	5.80	9.83
Hardness (as CaCO3) (mg/L)					
pH (pH)					
Turbidity (NTU)					
Anions and Nutrients					
Alkalinity, Bicarbonate (as CaCO3) (mg/L)					
Alkalinity, Carbonate (as CaCO3) (mg/L)					
Alkalinity, Hydroxide (as CaCO3) (mg/L)					
Alkalinity, Total (as CaCO3) (mg/L)					
Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromide (Br) (mg/L)					
Chloride (Cl) (mg/L)					
Fluoride (F) (mg/L)					
Nitrate (as N) (mg/L)					
Nitrite (as N) (mg/L)					
Total Kjeldahl Nitrogen (mg/L)	0.173	0.137	0.140	0.143	0.171
Orthophosphate-Dissolved (as P) (mg/L)					
Phosphorus (P)-Total Dissolved (mg/L)					
Phosphorus (P)-Total (mg/L)	0.0020	0.0028	0.0025	0.0024	<0.0020
Silicate (as SiO2) (mg/L)					
Sulfate (SO4) (mg/L)					
Cyanides					
Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon					
Dissolved Organic Carbon (mg/L)	2.15	2.07	2.04	1.98	1.45
Total Organic Carbon (mg/L)	2.29	2.12	2.24	2.02	1.54
Total Metals					
Aluminum (Al)-Total (mg/L)	0.0215	0.0176	0.0172	0.0170	0.0043
Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Total (mg/L)	0.00018	0.00014	0.00012	0.00013	0.00025
Barium (Ba)-Total (mg/L)	0.00440	0.00343	0.00335	0.00325	0.00429
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)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Total (mg/L)	1.87	1.44	1.39	1.37	2.20
Chromium (Cr)-Total (mg/L)	0.00013	0.00013	0.00012	<0.00010	<0.00010
Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1649931-6 Surface Water 18-JUL-15 NEM-2-S	L1649931-7 Surface Water 18-JUL-15 MAM-1-S	L1649931-8 Surface Water 18-JUL-15 MAM-2-S	L1649931-9 Surface Water 18-JUL-15 DUP-JULY-AMARUQ	L1649931-10 Surface Water 18-JUL-15 EB-JULY-AMARUQ
WATER						
Physical Tests	Conductivity (uS/cm)					
	Hardness (as CaCO3) (mg/L)	9.78	8.48	8.44	5.90	<0.50
	pH (pH)					
	Turbidity (NTU)					
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)					
	Alkalinity, Carbonate (as CaCO3) (mg/L)					
	Alkalinity, Hydroxide (as CaCO3) (mg/L)					
	Alkalinity, Total (as CaCO3) (mg/L)					
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bromide (Br) (mg/L)					
	Chloride (Cl) (mg/L)					
	Fluoride (F) (mg/L)					
	Nitrate (as N) (mg/L)					
	Nitrite (as N) (mg/L)					
	Total Kjeldahl Nitrogen (mg/L)	0.171	0.139	0.137	0.163	<0.050
	Orthophosphate-Dissolved (as P) (mg/L)					
	Phosphorus (P)-Total Dissolved (mg/L)					
	Phosphorus (P)-Total (mg/L)	0.0035	0.0031	0.0033	0.0048	<0.0020
	Silicate (as SiO2) (mg/L)					
	Sulfate (SO4) (mg/L)					
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.43	1.81	1.85	2.04	<0.50
	Total Organic Carbon (mg/L)	1.97	1.91	1.86	1.96	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	0.0981	0.0152	0.0142	0.0175	<0.0030
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00024	0.00030	0.00031	0.00013	<0.00010
	Barium (Ba)-Total (mg/L)	0.00423	0.00485	0.00479	0.00336	<0.000050
	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)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	2.24	2.16	2.14	1.36	<0.050
	Chromium (Cr)-Total (mg/L)	0.00013	0.00016	0.00015	0.00012	<0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1649931-11 Surface Water 18-JUL-15 TRAVEL BLANK-JULY-AMARUQ	L1649931-12 Surface Water 19-JUL-15 C2	L1649931-13 Surface Water 19-JUL-15 C14	L1649931-14 Surface Water 19-JUL-15 C17	L1649931-15 Surface Water 19-JUL-15 C20
WATER						
Physical Tests	Conductivity (uS/cm)	<2.0				
	Hardness (as CaCO3) (mg/L)	<0.50	8.72	10.4	9.60	9.60
	pH (pH)	5.80				
	Turbidity (NTU)	<0.10				
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Total (as CaCO3) (mg/L)	<2.0				
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bromide (Br) (mg/L)	<0.050				
	Chloride (Cl) (mg/L)	<0.10				
	Fluoride (F) (mg/L)	<0.020				
	Nitrate (as N) (mg/L)	<0.0050				
	Nitrite (as N) (mg/L)	<0.0010				
	Total Kjeldahl Nitrogen (mg/L)	<0.050	0.154	0.265	0.184	0.124
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010				
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020				
	Phosphorus (P)-Total (mg/L)	<0.0020	<0.0020	0.0022	0.0022	<0.0020
	Silicate (as SiO2) (mg/L)	<0.50				
	Sulfate (SO4) (mg/L)	<0.30				
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)		1.62	2.51	2.80	1.51
	Total Organic Carbon (mg/L)	<0.50	1.61	2.52	2.74	1.47
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0030	0.0126	0.0086	0.0148	0.0050
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	<0.00010	0.00015	0.00024	0.00023	0.00014
	Barium (Ba)-Total (mg/L)	<0.000050	0.00352	0.00361	0.00274	0.00205
	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)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	<0.050	2.15	2.82	2.49	2.27
	Chromium (Cr)-Total (mg/L)	<0.00010	<0.00010	<0.00010	0.00012	<0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	0.00099	0.00064	0.00069	<0.00050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1649931-16				
	Description	Surface Water				
	Sampled Date	19-JUL-15				
	Sampled Time					
	Client ID	C41				
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)					
	Hardness (as CaCO3) (mg/L)	6.77				
	pH (pH)					
	Turbidity (NTU)					
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)					
	Alkalinity, Carbonate (as CaCO3) (mg/L)					
	Alkalinity, Hydroxide (as CaCO3) (mg/L)					
	Alkalinity, Total (as CaCO3) (mg/L)					
	Ammonia, Total (as N) (mg/L)	<0.0050				
	Bromide (Br) (mg/L)					
	Chloride (Cl) (mg/L)					
	Fluoride (F) (mg/L)					
	Nitrate (as N) (mg/L)					
	Nitrite (as N) (mg/L)					
	Total Kjeldahl Nitrogen (mg/L)	0.129				
	Orthophosphate-Dissolved (as P) (mg/L)					
	Phosphorus (P)-Total Dissolved (mg/L)					
	Phosphorus (P)-Total (mg/L)	0.0030				
	Silicate (as SiO2) (mg/L)					
	Sulfate (SO4) (mg/L)					
Cyanides	Cyanide, Total (mg/L)	<0.0010				
	Cyanide, Free (mg/L)	<0.0010				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.61				
	Total Organic Carbon (mg/L)	1.98				
Total Metals	Aluminum (Al)-Total (mg/L)	0.0210				
	Antimony (Sb)-Total (mg/L)	<0.00010				
	Arsenic (As)-Total (mg/L)	0.00013				
	Barium (Ba)-Total (mg/L)	0.00426				
	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)	<0.0000050				
	Calcium (Ca)-Total (mg/L)	1.42				
	Chromium (Cr)-Total (mg/L)	0.00040				
	Cobalt (Co)-Total (mg/L)	<0.00010				
	Copper (Cu)-Total (mg/L)	0.00066				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1649931-1 Surface Water 17-JUL-15 WTN-1-S	L1649931-2 Surface Water 17-JUL-15 WTN-2-S	L1649931-3 Surface Water 17-JUL-15 WTS-1-S	L1649931-4 Surface Water 17-JUL-15 WTS-2-S	L1649931-5 Surface Water 18-JUL-15 NEM-1-S
WATER						
Total Metals	Iron (Fe)-Total (mg/L)	0.036	0.037	0.037	0.037	0.018
	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)	0.63	0.59	0.57	0.56	1.00
	Manganese (Mn)-Total (mg/L)	0.00635	0.00490	0.00494	0.00516	0.0104
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Total (mg/L)	0.00086	0.00069	0.00069	0.00067	0.00075
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	0.38	0.32	0.33	0.33	0.59
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	0.312	0.307	0.301	0.307	0.209
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	0.513	0.473	0.492	0.473	0.479
	Strontium (Sr)-Total (mg/L)	0.0131	0.00866	0.00800	0.00780	0.00908
	Sulfur (S)-Total (mg/L)	0.50	<0.50	<0.50	<0.50	1.07
	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)	0.00038	0.00030	<0.00030	<0.00030	<0.00030
	Uranium (U)-Total (mg/L)	0.000045	0.000045	0.000047	0.000043	<0.000010
	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	<0.0030	<0.0030
	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)	0.0081	0.0085	0.0110	0.0120	0.0023
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00013	0.00013	0.00011	0.00012	0.00023
	Barium (Ba)-Dissolved (mg/L)	0.00416	0.00340	0.00329	0.00330	0.00410
	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	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	1.89	1.48	1.42	1.39	2.28
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00170 DTC	0.00035	0.00031	0.00034	<0.00020

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1649931-6	L1649931-7	L1649931-8	L1649931-9	L1649931-10
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	18-JUL-15	18-JUL-15	18-JUL-15	18-JUL-15	18-JUL-15
Sampled Time					
Client ID	NEM-2-S	MAM-1-S	MAM-2-S	DUP-JULY-AMARUQ	EB-JULY-AMARUQ
Grouping / **Analyte**					
WATER					
Total Metals Iron (Fe)-Total (mg/L)	0.021	0.024	0.024	0.037	<0.010
Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000062
Lithium (Li)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Total (mg/L)	1.02	0.74	0.73	0.55	<0.10
Manganese (Mn)-Total (mg/L)	0.00974	0.00428	0.00399	0.00512	<0.00010
Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Total (mg/L)	0.00074	0.00091	0.00089	0.00067	<0.00050
Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total (mg/L)	0.59	0.49	0.49	0.33	<0.10
Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Total (mg/L)	0.214	0.313	0.314	0.298	<0.050
Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total (mg/L)	0.481	0.510	0.498	0.475	<0.050
Strontium (Sr)-Total (mg/L)	0.00917	0.0119	0.0119	0.00778	<0.00020
Sulfur (S)-Total (mg/L)	1.07	0.73	0.73	<0.50	<0.50
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	<0.00030	0.00032	<0.00030	<0.00030
Uranium (U)-Total (mg/L)	<0.000010	0.000031	0.000034	0.000042	<0.000010
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	<0.0030	<0.0030
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)	0.0017	0.0064	0.0066	0.0132	0.0010
Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Dissolved (mg/L)	0.00022	0.00027	0.00026	0.00011	<0.00010
Barium (Ba)-Dissolved (mg/L)	0.00417	0.00471	0.00462	0.00320	<0.000050
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	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Dissolved (mg/L)	2.26	2.20	2.19	1.42	<0.050
Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Dissolved (mg/L)	0.00021	0.00036	0.00037	0.00034	<0.00020

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1649931-11	L1649931-12	L1649931-13	L1649931-14	L1649931-15
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	18-JUL-15	19-JUL-15	19-JUL-15	19-JUL-15	19-JUL-15
Sampled Time					
Client ID	TRAVEL BLANK-JULY-AMARUQ	C2	C14	C17	C20
Grouping / **Analyte**					
WATER					
Total Metals Iron (Fe)-Total (mg/L)	<0.010	0.032	0.028	0.044	0.012
Lead (Pb)-Total (mg/L)	<0.000050	0.000061	<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	0.80	0.74	0.82	0.81
Manganese (Mn)-Total (mg/L)	<0.00010	0.00161	0.00244	0.00390	0.00133
Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Total (mg/L)	<0.00050	0.00057	<0.00050	0.00051	0.00055
Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total (mg/L)	<0.10	0.32	0.37	0.40	0.36
Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Total (mg/L)	<0.050	0.357	0.309	0.425	0.153
Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total (mg/L)	<0.050	0.494	0.512	0.559	0.506
Strontium (Sr)-Total (mg/L)	<0.00020	0.0115	0.0143	0.0129	0.00913
Sulfur (S)-Total (mg/L)	<0.50	1.17	0.55	0.54	0.60
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	0.00027	<0.00010
Titanium (Ti)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Total (mg/L)	<0.000010	0.000060	0.000033	0.000043	0.000022
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	<0.0030	<0.0030
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
Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD
Aluminum (Al)-Dissolved (mg/L)		0.0038	0.0053	0.0065	0.0021
Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Dissolved (mg/L)		0.00014	0.00023	0.00023	0.00013
Barium (Ba)-Dissolved (mg/L)		0.00332	0.00351	0.00260	0.00203
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	<0.010
Cadmium (Cd)-Dissolved (mg/L)		<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Dissolved (mg/L)		2.18	2.90	2.52	2.44
Chromium (Cr)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Dissolved (mg/L)		0.00080	0.00061	0.00062	0.00037

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1649931-16				
	Description	Surface Water				
	Sampled Date	19-JUL-15				
	Sampled Time					
	Client ID	C41				
Grouping	**Analyte**					
WATER						
Total Metals	Iron (Fe)-Total (mg/L)	0.070				
	Lead (Pb)-Total (mg/L)	<0.000050				
	Lithium (Li)-Total (mg/L)	<0.0010				
	Magnesium (Mg)-Total (mg/L)	0.76				
	Manganese (Mn)-Total (mg/L)	0.00164				
	Mercury (Hg)-Total (mg/L)	<0.0000050				
	Molybdenum (Mo)-Total (mg/L)	0.000062				
	Nickel (Ni)-Total (mg/L)	0.00318				
	Phosphorus (P)-Total (mg/L)	<0.050				
	Potassium (K)-Total (mg/L)	0.29				
	Selenium (Se)-Total (mg/L)	<0.000050				
	Silicon (Si)-Total (mg/L)	0.306				
	Silver (Ag)-Total (mg/L)	<0.000010				
	Sodium (Na)-Total (mg/L)	0.417				
	Strontium (Sr)-Total (mg/L)	0.00720				
	Sulfur (S)-Total (mg/L)	0.60				
	Thallium (Tl)-Total (mg/L)	<0.000010				
	Tin (Sn)-Total (mg/L)	<0.00010				
	Titanium (Ti)-Total (mg/L)	0.00034				
	Uranium (U)-Total (mg/L)	0.000038				
	Vanadium (V)-Total (mg/L)	<0.00050				
	Zinc (Zn)-Total (mg/L)	<0.0030				
	Zirconium (Zr)-Total (mg/L)	<0.00030				
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD				
	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	0.0062				
	Antimony (Sb)-Dissolved (mg/L)	<0.00010				
	Arsenic (As)-Dissolved (mg/L)	0.00011				
	Barium (Ba)-Dissolved (mg/L)	0.00400				
	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)	<0.0000050				
	Calcium (Ca)-Dissolved (mg/L)	1.47				
	Chromium (Cr)-Dissolved (mg/L)	0.00013				
	Cobalt (Co)-Dissolved (mg/L)	<0.00010				
	Copper (Cu)-Dissolved (mg/L)	0.00053				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1649931-1	L1649931-2	L1649931-3	L1649931-4	L1649931-5
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	17-JUL-15	17-JUL-15	17-JUL-15	17-JUL-15	18-JUL-15
Sampled Time					
Client ID	WTN-1-S	WTN-2-S	WTS-1-S	WTS-2-S	NEM-1-S
Grouping / **Analyte**					
WATER					
Dissolved Metals Iron (Fe)-Dissolved (mg/L)	<0.010	0.096 DTC	0.018	0.023	<0.010
Lead (Pb)-Dissolved (mg/L)	0.000104	<0.000050	<0.000050	0.000080	<0.000050
Lithium (Li)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved (mg/L)	0.64	0.60	0.57	0.56	1.01
Manganese (Mn)-Dissolved (mg/L)	0.00445	0.00431	0.00377	0.00424	0.00766
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Dissolved (mg/L)	0.00082	0.00071	0.00066	0.00068	0.00073
Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)	0.38	0.34	0.35	0.31	0.57
Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Dissolved (mg/L)	0.288	0.288	0.296	0.301	0.207
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	0.492	0.479	0.474	0.463	0.474
Strontium (Sr)-Dissolved (mg/L)	0.0128	0.00857	0.00782	0.00774	0.00891
Sulfur (S)-Dissolved (mg/L)	<0.50	<0.50	<0.50	<0.50	1.05
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)	0.000037	0.000041	0.000040	0.000042	<0.000010
Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)	0.0016	<0.0010	<0.0010	<0.0010	<0.0010
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	L1649931-6	L1649931-7	L1649931-8	L1649931-9	L1649931-10
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	18-JUL-15	18-JUL-15	18-JUL-15	18-JUL-15	18-JUL-15
Sampled Time					
Client ID	NEM-2-S	MAM-1-S	MAM-2-S	DUP-JULY-AMARUQ	EB-JULY-AMARUQ
Grouping / **Analyte**					
WATER					
Dissolved Metals Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	<0.010	0.021	<0.010
Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	0.000055	<0.000050
Lithium (Li)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved (mg/L)	1.00	0.72	0.72	0.57	<0.10
Manganese (Mn)-Dissolved (mg/L)	0.00750	0.00323	0.00314	0.00411	<0.00010
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Dissolved (mg/L)	0.00071	0.00085	0.00089	0.00063	<0.00050
Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)	0.55	0.46	0.46	0.32	<0.10
Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Dissolved (mg/L)	0.208	0.296	0.298	0.300	<0.050
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	0.471	0.500	0.504	0.469	<0.050
Strontium (Sr)-Dissolved (mg/L)	0.00903	0.0116	0.0116	0.00787	<0.00020
Sulfur (S)-Dissolved (mg/L)	1.07	0.71	0.71	<0.50	<0.50
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	0.000027	0.000030	0.000040	<0.000010
Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
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	L1649931-11	L1649931-12	L1649931-13	L1649931-14	L1649931-15
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	18-JUL-15	19-JUL-15	19-JUL-15	19-JUL-15	19-JUL-15
Sampled Time					
Client ID	TRAVEL BLANK-JULY-AMARUQ	C2	C14	C17	C20
Grouping / **Analyte**					
WATER					
Dissolved Metals Iron (Fe)-Dissolved (mg/L)		0.012	0.011	0.020	0.014
Lead (Pb)-Dissolved (mg/L)		<0.000050	0.000053	<0.000050	<0.000050
Lithium (Li)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved (mg/L)		0.80	0.76	0.80	0.85
Manganese (Mn)-Dissolved (mg/L)		0.00123	0.00144	0.00300	0.00095
Mercury (Hg)-Dissolved (mg/L)		<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Dissolved (mg/L)		0.00055	<0.00050	<0.00050	<0.00050
Phosphorus (P)-Dissolved (mg/L)		<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)		0.32	0.37	0.38	0.36
Selenium (Se)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Dissolved (mg/L)		0.342	0.307	0.401	0.155
Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)		0.484	0.507	0.542	0.511
Strontium (Sr)-Dissolved (mg/L)		0.0112	0.0143	0.0124	0.00921
Sulfur (S)-Dissolved (mg/L)		1.13	0.54	0.52	0.61
Thallium (Tl)-Dissolved (mg/L)		<0.000010	<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	<0.00030
Uranium (U)-Dissolved (mg/L)		0.000051	0.000028	0.000039	0.000020
Vanadium (V)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
Zirconium (Zr)-Dissolved (mg/L)		<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	L1649931-16				
	Description	Surface Water				
	Sampled Date	19-JUL-15				
	Sampled Time					
	Client ID	C41				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Iron (Fe)-Dissolved (mg/L)	0.026				
	Lead (Pb)-Dissolved (mg/L)	<0.000050				
	Lithium (Li)-Dissolved (mg/L)	<0.0010				
	Magnesium (Mg)-Dissolved (mg/L)	0.75				
	Manganese (Mn)-Dissolved (mg/L)	0.00097				
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050				
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050				
	Nickel (Ni)-Dissolved (mg/L)	0.00286				
	Phosphorus (P)-Dissolved (mg/L)	<0.050				
	Potassium (K)-Dissolved (mg/L)	0.26				
	Selenium (Se)-Dissolved (mg/L)	<0.000050				
	Silicon (Si)-Dissolved (mg/L)	0.286				
	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	0.396				
	Strontium (Sr)-Dissolved (mg/L)	0.00704				
	Sulfur (S)-Dissolved (mg/L)	0.60				
	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)	0.000035				
	Vanadium (V)-Dissolved (mg/L)	<0.00050				
	Zinc (Zn)-Dissolved (mg/L)	<0.0010				
	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 & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Nitrite (as N)	DLM	L1649931-11
Duplicate	Titanium (Ti)-Total	DLM	L1649931-15, -16
Duplicate	Bromide (Br)	DLM	L1649931-11
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Phosphorus (P)-Total	MS-B	L1649931-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1649931-1, -10, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
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-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
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.

Reference Information

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CL-L-IC-N-VA	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)

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

CN-FREE-L-CFA-VA	Water	Low Level Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

CN-T-L-CFA-VA	Water	Low Level 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.

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-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.

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-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

Reference Information

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

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

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

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

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

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

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

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

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

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.

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

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

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.

SILICATE-COL-VA Water Silicate by Colourimetric analysis APHA 4500-SiO2 E.

This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.

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.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

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.

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.

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg 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.

ALS Environmental

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L1649931-COFC

COC # _____

Page 1 of

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☐ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☐ PDF ☐ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TA
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	P TOC, Ammonia, TKN, Total P	F/P DOC	P T-CN (Low), Free CN (Low)	P Total mercury	F/P Dissolved mercury	P Total Metals	F/P Dissolved Metals	Conventionals ** See Notes
	WTN-1-S	17-Jul-15		Surface Water	X	X	X	X	X	X	X	
	WTN-2-S	17-Jul-15		Surface Water	X	X	X	X	X	X	X	
	WTS-1-S	17-Jul-15		Surface Water	X	X	X	X	X	X	X	
	WTS-2-S	17-Jul-15		Surface Water	X	X	X	X	X	X	X	
	NEM-1-S	18-Jul-15		Surface Water	X	X	X	X	X	X	X	
	NEM-2-S	18-Jul-15		Surface Water	X	X	X	X	X	X	X	
	MAM-1-S	18-Jul-15		Surface Water	X	X	X	X	X	X	X	
	MAM-2-S	18-Jul-15		Surface Water	X	X	X	X	X	X	X	
	DUP-JULY-AMARUQ			Surface Water	X	X	X	X	X	X	X	
	EB-JULY-AMARUQ	18-Jul-15		Surface Water	X	X	X	X	X	X	X	
	TRAVEL BLANK - JULY - AMARUQ			Surface Water	X		X	X		X		X

Short Holding Time
Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Included in this shipment is one complete travel blank set. "Converntionals" may not accurately describe the use of the 1 L bottle and is only to provide a place holder on this COC.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observatic Yes / No ? If Yes add
Morgan Finley	20-Jul-15	9:00				20 °C	EK	29/15	12:05	

GENF 20.00 Front

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☐ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☐ PDF ☐ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	TOC, Ammonia, TKN, Total P	DOC	T-CN (Low), Free CN (Low)	Total mercury	Dissolved mercury	Total Metals	Dissolved Metals
					P	F/P	P	P	F/P	P	F/P
	C2	19-Jul-15		Surface Water	X	X	X	X	X	X	X
	C14	19-Jul-15		Surface Water	X	X	X	X	X	X	X
	C17	19-Jul-15		Surface Water	X	X	X	X	X	X	X
	C20	19-Jul-15		Surface Water	X	X	X	X	X	X	X
	C41	19-Jul-15		Surface Water	X	X	X	X	X	X	X

Short Holding Time
Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observatic Yes / No ? If Yes add
Morgan Finley	20-Jul-15	9:00				20 °C	EK	July 29/15	12:08	

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 31-AUG-15
Report Date: 21-SEP-15 09:59 (MT)
Version: FINAL REV. 2

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1665542

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers:
Legal Site Desc:

Comments:

21-SEP-2015 This report replaces the previous version and contains updated Sampling Dates for 2 samples.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1665542-1	L1665542-2	L1665542-3	L1665542-4	L1665542-5
Description	SURFACE WATE	SURFACE WATE	SURFACE WATE	SURFACE WATE	SURFACE WATE
Sampled Date	21-AUG-15	21-AUG-15	23-AUG-15	23-AUG-15	24-AUG-15
Sampled Time	11:30	12:30	13:10	11:20	13:05
Client ID	WTS-03-S	WTS-04-S	NEM-03-S	NEM-04-S	MAM-03-S
Grouping / **Analyte**					
WATER					
Physical Tests					
Conductivity (uS/cm)	18.6	18.5	25.5	25.4	24.6
pH (pH)	6.66	6.74	7.06	7.05	6.85
Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Total Dissolved Solids (mg/L)	12.2	14.5	15.7	15.7	14.8
Turbidity (NTU)	0.26	0.23	0.19	0.21	0.24
Anions and Nutrients					
Alkalinity, Bicarbonate (as CaCO3) (mg/L)	4.5	3.8	6.8	6.7	4.8
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)	4.5	3.8	6.8	6.7	4.8
Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl) (mg/L)	1.57	1.58	0.54	0.54	2.33
Fluoride (F) (mg/L)	0.024	0.024	0.022	0.022	0.026
Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total Dissolved (mg/L)	0.0024	0.0022	0.0022	0.0023	0.0038
Silicate (as SiO2) (mg/L)	0.59	0.60	<0.50	<0.50	0.63
Sulfate (SO4) (mg/L)	1.30	1.31	3.24	3.24	2.23

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1665542-6 SURFACE WATE 24-AUG-15 12:30 MAM-04-S	L1665542-7 SURFACE WATE AMARUQ AUG DUP-1	L1665542-8 SURFACE WATE 25-AUG-15 12:20 C2-AUG	L1665542-9 SURFACE WATE 25-AUG-15 11:55 C14-AUG	L1665542-10 SURFACE WATE 25-AUG-15 11:25 C17-AUG
WATER						
Physical Tests	Conductivity (uS/cm)	24.4	19.5	22.7	23.5	23.0
	pH (pH)	6.83	6.70	6.83	7.08	7.01
	Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	1.1
	Total Dissolved Solids (mg/L)	15.3	14.2	15.9	17.0	17.8
	Turbidity (NTU)	0.27	0.24	0.24	0.35	0.82
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	4.5	4.3	5.2	7.7	7.9
	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)	4.5	4.3	5.2	7.7	7.9
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	2.32	1.84	0.51	0.56	0.59
	Fluoride (F) (mg/L)	0.025	0.026	0.072	0.034	0.049
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	0.0243	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total Dissolved (mg/L)	0.0023	0.0025	0.0021	0.0027	0.0031
	Silicate (as SiO2) (mg/L)	0.67	0.56	0.88	0.58	0.63
	Sulfate (SO4) (mg/L)	2.23	1.37	3.67	1.54	1.43

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1665542-11 SURFACE WATE 25-AUG-15 10:50 C20-AUG	L1665542-12 SURFACE WATE 25-AUG-15 10:15 C41-AUG	L1665542-13 SURFACE WATE 25-AUG-15 AMARUQ AUG EB-1	L1665542-14 SURFACE WATE 20-AUG-15 16:30 WTN-03-S	L1665542-15 SURFACE WATE 20-AUG-15 17:30 WTN-04-S
WATER						
Physical Tests	Conductivity (uS/cm)	22.2	20.0	<2.0	18.8	19.8
	pH (pH)	7.08	6.96	5.40	6.83	6.82
	Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Total Dissolved Solids (mg/L)	15.9	15.4	<3.0	14.2	13.2
	Turbidity (NTU)	0.24	0.33	<0.10	0.23	0.28
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	7.1	5.8	<1.0	4.9	3.9
	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)	7.1	5.8	<1.0	4.9	3.9
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	0.64	0.58	<0.10	1.57	1.84
	Fluoride (F) (mg/L)	0.037	0.055	<0.020	0.025	0.025
	Nitrate (as N) (mg/L)	<0.0050	0.0097	<0.0050	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total Dissolved (mg/L)	0.0021	0.0028	<0.0020	0.0025	0.0028
	Silicate (as SiO2) (mg/L)	<0.50	0.86	<0.50	0.56	0.57
	Sulfate (SO4) (mg/L)	1.63	2.05	<0.30	1.31	1.37

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1665542-16				
	Description	SURFACE WATE				
	Sampled Date					
	Sampled Time					
	Client ID	AMARUQ AUG TRAV-1				
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	<2.0				
	pH (pH)	5.34				
	Total Suspended Solids (mg/L)	<1.0				
	Total Dissolved Solids (mg/L)	<3.0				
	Turbidity (NTU)	<0.10				
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				
	Bromide (Br) (mg/L)	<0.050				
	Chloride (Cl) (mg/L)	<0.10				
	Fluoride (F) (mg/L)	<0.020				
	Nitrate (as N) (mg/L)	<0.0050				
	Nitrite (as N) (mg/L)	<0.0010				
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010				
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020				
	Silicate (as SiO2) (mg/L)	<0.50				
	Sulfate (SO4) (mg/L)	<0.30				

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CL-L-IC-N-VA	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
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-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-TD-COL-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
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.			
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
SILICATE-COL-VA	Water	Silicate by Colourimetric analysis	APHA 4500-SiO2 E.
This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.			
SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TDS-LOW-VA	Water	Low Level TDS (3.0mg/L) by Gravimetric	APHA 2540C
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-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540D
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.			
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:

Reference Information

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg 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.

Short Holding Time

ALS EI ● *Rush Processing*

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 1 of 2

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☑ PDF ☑ Excel ☐ Digital ☐ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com		
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:		
Contact:		LSD:		
Address:				
Phone:	Fax:	Quote #:	Q39503	
Lab Work Order # (lab use only)		ALS Contact:	Brent Mack	Sampler: Eric Fra nz

Sample	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conventionals** see notes	TSS-Low, TDS-Low										Number of Containers
	WTS-03-S	21-Aug-15	11:30	Surface Water	X	X										2
	WTS-04-S	21-Aug-15	12:30	Surface Water	X	X										2
	NEM-03-S	23-Aug-15	13:10	Surface Water	X	X										2
	NEM-04-S	23-Aug-15	11:20	Surface Water	X	X										2
	MAM-03-S	24-Aug-15	13:05	Surface Water	X	X										2
	MAM-04-S	24-Aug-15	12:30	Surface Water	X	X										2
	AMARUQ AUG DUP-1	-	-	Surface Water	X	X										2
	C2-AUG	25-Aug-15	12:20	Surface Water	X	X										2
	C14-AUG	25-Aug-15	11:55	Surface Water	X	X										2
	C17-AUG	25-Aug-15	11:25	Surface Water	X	X										2
	C20-AUG	25-Aug-15	10:50	Surface Water	X	X										2
	C41-AUG	25-Aug-15	10:15	Surface Water	X	X										2

L1665542-COFC

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

**Conventionals includes: Alk Species, pH, EC, Turbidity, Conductivity, Anions (F, NO2, NO3, Br, SO4), low-level Chloride, Silicate, TD-P, and Ortho-PO4.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Eric Franz	26-Aug-15	8:00	Jeew	31/Aug	11:50	17.4 16.5 °C				

GENF 20.00 Front

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	**Client / Project Information**	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		**ALS Contact:** Brent Mack	**Sampler:** Eric Fra nz

Sample	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conventionals** see notes	TSS-Low, TDS-Low	Number of Containers
	AMARUQ AUG EB-1	25-Aug-15		Surface Water	X	X	2
	WTN-03-S	20-Aug-15	16:30	Surface Water	X	X	2
	WTN-04-S	20-Aug-15	17:30	Surface Water	X	X	2
	AMARUQ AUG TRAV-1	-	-	Surface Water	X	X	1

L1665542-COFC

Short Holding Time

● *Rush Processing*

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

**Conventionals includes: Alk Species, pH, EC, Turbidity, Conductivity, Anions (F, NO2, NO3, Br, SO4), low-level Chloride, Silicate, TD-P, and Ortho-PO4.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Eric Franz	26-Aug-15					°C				

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 02-SEP-15
Report Date: 17-SEP-15 09:39 (MT)
Version: FINAL REV. 2

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1667195

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers:
Legal Site Desc:

Comments: 17-SEP-2015 This report replaces the previous version and contains a change to a Sampling Date for one sample.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1667195-1	L1667195-2	L1667195-3	L1667195-4	L1667195-5
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	21-AUG-15	21-AUG-15	23-AUG-15	23-AUG-15	24-AUG-15
Sampled Time	11:30	12:30	13:10	11:20	13:05
Client ID	WTS-03-S	WTS-04-S	NEM-03-S	NEM-04-S	MAM-03-S
Grouping / **Analyte**					
WATER					
Physical Tests Hardness (as CaCO3) (mg/L)	6.66	6.65	9.80	10.0	9.11
Anions and Nutrients Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Kjeldahl Nitrogen (mg/L)	0.128	0.111	0.084	0.107	0.095
Phosphorus (P)-Total (mg/L)	<0.0020	0.0028	<0.0020	<0.0020	<0.0020
Cyanides Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon Dissolved Organic Carbon (mg/L)	1.92	1.85	1.38	1.55	1.57
Total Organic Carbon (mg/L)	1.73	1.72	1.30	1.41	1.88
Total Metals Aluminum (Al)-Total (mg/L)	0.0094	0.0077	0.0043	0.0050	0.0050
Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	0.00011	<0.00010	<0.00010
Arsenic (As)-Total (mg/L)	0.00017	0.00018	0.00033	0.00031	0.00043
Barium (Ba)-Total (mg/L)	0.00323	0.00325	0.00408	0.00409	0.00440
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)	<0.0000050	<0.0000050	0.0000122	<0.0000050	<0.0000050
Calcium (Ca)-Total (mg/L)	1.62	1.63	2.23	2.22	2.32
Chromium (Cr)-Total (mg/L)	<0.00010	0.00010	<0.00010	0.00011	<0.00010
Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)-Total (mg/L)	0.020	0.017	0.013	0.011	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)	0.62	0.62	1.01	1.01	0.77
Manganese (Mn)-Total (mg/L)	0.00207	0.00202	0.00355	0.00340	0.00169
Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Total (mg/L)	0.00052	0.00054	0.00061	0.00060	0.00061
Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total (mg/L)	0.37	0.36	0.58	0.56	0.53
Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Total (mg/L)	0.261	0.262	0.216	0.214	0.293
Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total (mg/L)	0.524	0.505	0.491	0.479	0.525
Strontium (Sr)-Total (mg/L)	0.00988	0.0102	0.00953	0.00958	0.0126
Sulfur (S)-Total (mg/L)	0.52	0.50	1.15	1.16	0.83

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1667195-6	L1667195-7	L1667195-8	L1667195-9	L1667195-10
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	24-AUG-15		25-AUG-15	25-AUG-15	25-AUG-15
Sampled Time	12:30		12:20	11:55	11:25
Client ID	MAM-04-S	AMARUQ AUG DUP-1	C2-AUG	C14-AUG	C17-AUG
Grouping / **Analyte**					
WATER					
Physical Tests Hardness (as CaCO3) (mg/L)	9.13	7.14	8.78	10.0	9.39
Anions and Nutrients Ammonia, Total (as N) (mg/L)	<0.0050	0.0073	0.0052	<0.0050	0.0053
Total Kjeldahl Nitrogen (mg/L)	0.129	0.153	0.085	0.162	0.144
Phosphorus (P)-Total (mg/L)	<0.0020	0.0036	<0.0020	<0.0020	0.0032
Cyanides Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon Dissolved Organic Carbon (mg/L)	1.61	1.79	1.29	2.34	2.73
Total Organic Carbon (mg/L)	1.58	1.80	1.41	2.39	2.68
Total Metals Aluminum (Al)-Total (mg/L)	0.0058	0.0083	0.0044	0.0064	0.0211
Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Total (mg/L)	0.00043	0.00021	0.00015	0.00031	0.00039
Barium (Ba)-Total (mg/L)	0.00441	0.00355	0.00324	0.00304	0.00267
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)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Total (mg/L)	2.29	1.74	2.10	2.71	2.44
Chromium (Cr)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	0.00028
Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	0.00013
Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	0.00082	0.00070	0.00080
Iron (Fe)-Total (mg/L)	0.014	0.018	0.028	0.023	0.164
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)	0.77	0.64	0.78	0.70	0.79
Manganese (Mn)-Total (mg/L)	0.00173	0.00268	0.00031	0.00293	0.0169
Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000055
Nickel (Ni)-Total (mg/L)	0.00057	0.00061	<0.00050	<0.00050	0.00065
Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total (mg/L)	0.52	0.37	0.32	0.35	0.38
Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Total (mg/L)	0.297	0.252	0.379	0.268	0.304
Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total (mg/L)	0.520	0.515	0.518	0.510	0.555
Strontium (Sr)-Total (mg/L)	0.0126	0.0111	0.0113	0.0142	0.0127
Sulfur (S)-Total (mg/L)	0.81	0.52	1.28	0.60	0.57

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1667195-11 Surface Water 25-AUG-15 10:50 C20-AUG	L1667195-12 Surface Water 25-AUG-15 10:15 C41-AUG	L1667195-13 Surface Water 25-AUG-15 11:30 AMARUQ AUG EB-1	L1667195-14 Surface Water 20-AUG-15 16:30 WTN-03-S	L1667195-15 Surface Water 20-AUG-15 17:30 WTN-04-S
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	8.74	7.87	<0.50	6.70	7.18
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Total Kjeldahl Nitrogen (mg/L)	0.090	0.100	<0.050	0.109	0.107
	Phosphorus (P)-Total (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	0.0023
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.39	1.91	<0.50	1.73	2.09
	Total Organic Carbon (mg/L)	1.35	1.44	<0.50	1.71	1.78
Total Metals	Aluminum (Al)-Total (mg/L)	0.0042	0.0081	0.0035 RRV	0.0083	0.0099
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00017	0.00015	<0.00010	0.00016	0.00018
	Barium (Ba)-Total (mg/L)	0.00183	0.00392	0.000088 RRV	0.00327	0.00345
	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)	<0.0000050	<0.0000050	0.0000087	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	2.26	1.64	<0.050	1.64	1.77
	Chromium (Cr)-Total (mg/L)	<0.00010	0.00019	<0.00010	<0.00010	0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	0.00066	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.014	0.059	<0.010	0.016	0.019
	Lead (Pb)-Total (mg/L)	<0.000050	0.000081	0.000708 RRV	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Magnesium (Mg)-Total (mg/L)	0.77	0.87	<0.10	0.64	0.65
	Manganese (Mn)-Total (mg/L)	0.00104	0.00173	<0.00010	0.00198	0.00256
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	<0.000050	0.000073	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Total (mg/L)	<0.00050	0.00230	<0.00050	0.00058	0.00059
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	0.34	0.29	<0.10	0.39	0.37
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	0.140	0.369	<0.050	0.249	0.265
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	0.487	0.476	<0.050	0.500	0.492
	Strontium (Sr)-Total (mg/L)	0.00879	0.00817	<0.00020	0.00987	0.0111
	Sulfur (S)-Total (mg/L)	0.61	0.75	<0.50	0.50	<0.50

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1667195-16
	Description	Surface Water
	Sampled Date	20-AUG-15
	Sampled Time	11:30
	Client ID	AMARUQ AUG TRAV-1
Grouping	**Analyte**	
WATER		
Physical Tests	Hardness (as CaCO3) (mg/L)	<0.50
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	<0.0050
	Total Kjeldahl Nitrogen (mg/L)	<0.050
	Phosphorus (P)-Total (mg/L)	<0.0020
Cyanides	Cyanide, Total (mg/L)	<0.0010
	Cyanide, Free (mg/L)	<0.0010
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	
	Total Organic Carbon (mg/L)	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0030
	Antimony (Sb)-Total (mg/L)	<0.00010
	Arsenic (As)-Total (mg/L)	<0.00010
	Barium (Ba)-Total (mg/L)	<0.000050
	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)	<0.0000050
	Calcium (Ca)-Total (mg/L)	<0.050
	Chromium (Cr)-Total (mg/L)	<0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050
	Iron (Fe)-Total (mg/L)	<0.010
	Lead (Pb)-Total (mg/L)	<0.000050
	Lithium (Li)-Total (mg/L)	<0.0010
	Magnesium (Mg)-Total (mg/L)	<0.10
	Manganese (Mn)-Total (mg/L)	<0.00010
	Mercury (Hg)-Total (mg/L)	<0.0000050
	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
	Selenium (Se)-Total (mg/L)	<0.000050
	Silicon (Si)-Total (mg/L)	<0.050
	Silver (Ag)-Total (mg/L)	<0.000010
	Sodium (Na)-Total (mg/L)	<0.050
	Strontium (Sr)-Total (mg/L)	<0.00020
	Sulfur (S)-Total (mg/L)	<0.50

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1667195-1	L1667195-2	L1667195-3	L1667195-4	L1667195-5
	Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	21-AUG-15	21-AUG-15	23-AUG-15	23-AUG-15	24-AUG-15
	Sampled Time	11:30	12:30	13:10	11:20	13:05
	Client ID	WTS-03-S	WTS-04-S	NEM-03-S	NEM-04-S	MAM-03-S
Grouping	**Analyte**					
WATER						
Total Metals	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	<0.00030	<0.00030	<0.00030	<0.00030
	Uranium (U)-Total (mg/L)	0.000037	0.000036	0.000014	<0.000010	0.000025
	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	<0.0030	<0.0030
	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)	0.0061	0.0053	0.0016	0.0012	0.0022
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00016	0.00016	0.00027	0.00029	0.00039
	Barium (Ba)-Dissolved (mg/L)	0.00315	0.00329	0.00387	0.00390	0.00433
	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	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	1.62	1.63	2.25	2.29	2.34
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00036	0.00034	0.00023	0.00024	0.00036
	Iron (Fe)-Dissolved (mg/L)	0.011	0.011	<0.010	<0.010	<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)	0.63	0.63	1.02	1.04	0.79
	Manganese (Mn)-Dissolved (mg/L)	0.00123	0.00136	0.00061	0.00046	0.00034
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00050	0.00054	0.00052	0.00054
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	0.37	0.36	0.59	0.60	0.53
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Dissolved (mg/L)	0.254	0.250	0.202	0.209	0.289
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	0.509	0.502	0.480	0.470	0.520
	Strontium (Sr)-Dissolved (mg/L)	0.00964	0.00984	0.00942	0.00937	0.0125
	Sulfur (S)-Dissolved (mg/L)	<0.50	<0.50	1.14	1.12	0.81

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1667195-6	L1667195-7	L1667195-8	L1667195-9	L1667195-10
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	24-AUG-15		25-AUG-15	25-AUG-15	25-AUG-15
Sampled Time	12:30		12:20	11:55	11:25
Client ID	MAM-04-S	AMARUQ AUG DUP-1	C2-AUG	C14-AUG	C17-AUG
Grouping / **Analyte**					
WATER					
Total Metals 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	<0.00030	<0.00030	<0.00030	0.00036
Uranium (U)-Total (mg/L)	0.000024	0.000034	0.000029	0.000028	0.000041
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	<0.0030	<0.0030
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)	0.0024	0.0048	0.0013	0.0027	0.0038
Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Dissolved (mg/L)	0.00036	0.00020	0.00012	0.00026	0.00034
Barium (Ba)-Dissolved (mg/L)	0.00429	0.00355	0.00318	0.00287	0.00241
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	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Dissolved (mg/L)	2.35	1.78	2.18	2.79	2.47
Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	0.00010
Copper (Cu)-Dissolved (mg/L)	0.00042	0.00036	0.00069	0.00061	0.00067
Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	0.072
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)	0.79	0.65	0.81	0.74	0.78
Manganese (Mn)-Dissolved (mg/L)	0.00032	0.00117	<0.00010	0.00120	0.0146
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Dissolved (mg/L)	0.00052	0.00054	<0.00050	<0.00050	0.00053
Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)	0.52	0.38	0.33	0.37	0.37
Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Dissolved (mg/L)	0.289	0.250	0.385	0.263	0.273
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	0.523	0.511	0.517	0.504	0.538
Strontium (Sr)-Dissolved (mg/L)	0.0123	0.0111	0.0114	0.0139	0.0123
Sulfur (S)-Dissolved (mg/L)	0.79	<0.50	1.27	0.57	0.52

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1667195-11	L1667195-12	L1667195-13	L1667195-14	L1667195-15
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	25-AUG-15	25-AUG-15	25-AUG-15	20-AUG-15	20-AUG-15
Sampled Time	10:50	10:15	11:30	16:30	17:30
Client ID	C20-AUG	C41-AUG	AMARUQ AUG EB-1	WTN-03-S	WTN-04-S
Grouping / **Analyte**					
WATER					
Total Metals 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	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Total (mg/L)	0.000020	0.000022	<0.000010	0.000037	0.000035
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	<0.0030	<0.0030
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)	0.0018	0.0026	<0.0010	0.0045	0.0048
Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Dissolved (mg/L)	0.00013	0.00013	<0.00010	0.00014	0.00019
Barium (Ba)-Dissolved (mg/L)	0.00174	0.00376	<0.000050	0.00316	0.00345
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	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Dissolved (mg/L)	2.24	1.69	<0.050	1.65	1.80
Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Dissolved (mg/L)	0.00041	0.00054	<0.00020	0.00037	0.00037
Iron (Fe)-Dissolved (mg/L)	<0.010	0.029	<0.010	<0.010	<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)	0.76	0.89	<0.10	0.63	0.66
Manganese (Mn)-Dissolved (mg/L)	0.00045	0.00113	<0.00010	0.00057	0.00132
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	0.000067	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00230	<0.00050	<0.00050	0.00053
Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)	0.33	0.30	<0.10	0.38	0.37
Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Dissolved (mg/L)	0.137	0.365	<0.050	0.249	0.256
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	0.476	0.483	<0.050	0.502	0.502
Strontium (Sr)-Dissolved (mg/L)	0.00873	0.00795	<0.00020	0.00966	0.0110
Sulfur (S)-Dissolved (mg/L)	0.57	0.72	<0.50	<0.50	<0.50

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1667195-16				
	Description	Surface Water				
	Sampled Date	20-AUG-15				
	Sampled Time	11:30				
	Client ID	AMARUQ AUG TRAV-1				
Grouping	**Analyte**					
WATER						
Total Metals	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				
	Vanadium (V)-Total (mg/L)	<0.00050				
	Zinc (Zn)-Total (mg/L)	<0.0030				
	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)					
	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)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1667195-1 Surface Water 21-AUG-15 11:30 WTS-03-S	L1667195-2 Surface Water 21-AUG-15 12:30 WTS-04-S	L1667195-3 Surface Water 23-AUG-15 13:10 NEM-03-S	L1667195-4 Surface Water 23-AUG-15 11:20 NEM-04-S	L1667195-5 Surface Water 24-AUG-15 13:05 MAM-03-S
Sample ID / Description / Sampled Date / Sampled Time / Client ID						
WATER						
Dissolved Metals	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)	0.000031	0.000031	<0.000010	<0.000010	0.000018
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	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	L1667195-6	L1667195-7	L1667195-8	L1667195-9	L1667195-10
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	24-AUG-15		25-AUG-15	25-AUG-15	25-AUG-15
Sampled Time	12:30		12:20	11:55	11:25
Client ID	MAM-04-S	AMARUQ AUG DUP-1	C2-AUG	C14-AUG	C17-AUG
Grouping / **Analyte**					
WATER					
Dissolved Metals 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)	0.000018	0.000030	0.000022	0.000022	0.000033
Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
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

Grouping	Analyte	L1667195-11 Surface Water 25-AUG-15 10:50 C20-AUG	L1667195-12 Surface Water 25-AUG-15 10:15 C41-AUG	L1667195-13 Surface Water 25-AUG-15 11:30 AMARUQ AUG EB-1	L1667195-14 Surface Water 20-AUG-15 16:30 WTN-03-S	L1667195-15 Surface Water 20-AUG-15 17:30 WTN-04-S
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
WATER						
Dissolved Metals	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)	0.000017	0.000017	<0.000010	0.000030	0.000031
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	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	L1667195-16				
	Description	Surface Water				
	Sampled Date	20-AUG-15				
	Sampled Time	11:30				
	Client ID	AMARUQ AUG TRAV-1				
Grouping	**Analyte**					
WATER						
Dissolved Metals	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)					

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Aluminum (Al)-Total	MS-B	L1667195-14, -15, -16
Matrix Spike	Barium (Ba)-Total	MS-B	L1667195-14, -15, -16
Matrix Spike	Manganese (Mn)-Total	MS-B	L1667195-14, -15, -16
Matrix Spike	Strontium (Sr)-Total	MS-B	L1667195-14, -15, -16
Matrix Spike	Titanium (Ti)-Total	MS-B	L1667195-14, -15, -16
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Aluminum (Al)-Dissolved	RRV	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Barium (Ba)-Dissolved	RRV	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Lead (Pb)-Dissolved	RRV	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Manganese (Mn)-Dissolved	RRV	L1667195-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
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**
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)

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.

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CARBONS-TOC-VA Water Total organic carbon by combustion APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CN-FREE-L-CFA-VA Water Low Level Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

CN-T-L-CFA-VA Water Low Level 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.

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.

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-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.

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

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

Reference Information

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.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

** 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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg 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.

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # ______

Report To	
Company:	Azimuth Consulting Group
Contact:	Eric Franz
Address:	218-2902 West Broadway
	Vancouver, BC V6K2G8
Phone:	604-730-1220 Fax:
Invoice To	Same as Report ? ☑ Yes ☐ No
Hardcopy of Invoice with Report?	☐ Yes ☑ No
Company:	
Contact:	
Address:	
Phone:	Fax:
Lab Work Order # (lab use only)	

Report Format / Distribution	
☑ Standard ☐ Other	
☑ PDF ☑ Excel ☐ Digital ☐ Fax	
Email 1:	efranz@azimuthgroup.ca
Email 2:	gmann@azimuthgroup.ca
Email 3:	ryan.vanengen@agnicoeagle.com
Client / Project Information	
Job #:	Amaruq Surfacewater
PO / AFE:	
LSD:	
Quote #:	Q39503
ALS Contact:	Brent Mack
Sampler:	Eric Franz

Service Requested (Rush for routine analysis subject to availability)

- ◉ Regular (Standard Turnaround Times - Business Days)
- ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	TOC, Ammonia, TKN, Total P (P)	DOC (F/P)	T-CN (Low), Free CN (Low) (P)	Total mercury (P)	Dissolved mercury (F/P)	Total Metals (P)	Dissolved Metals (F/P)	Number of Containers
1	WTS-03-S	21-Aug-15	11:30	Surface Water	X	X	X	X	X	X	X	7
2	WTS-04-S	21-Aug-15	12:30	Surface Water	X	X	X	X	X	X	X	7
3	NEM-03-S	23-Aug-15	13:10	Surface Water	X	X	X	X	X	X	X	7
4	NEM-04-S	23-Aug-15	11:20	Surface Water	X	X	X	X	X	X	X	7
5	MAM-03-S	24-Aug-15	13:05	Surface Water	X	X	X	X	X	X	X	7
6	MAM-04-S	24-Aug-15	12:30	Surface Water	X	X	X	X	X	X	X	7
7	AMARUQ AUG DUP-1	-	-	Surface Water	X	X	X	X	X	X	X	7
8	C2-AUG	25-Aug-15	12:20	Surface Water	X	X	X	X	X	X	X	7
9	C14-AUG	25-Aug-15	11:55	Surface Water	X	X	X	X	X	X	X	7
10	C17-AUG	25-Aug-15	11:25	Surface Water	X	X	X	X	X	X	X	7
11	C20-AUG	25-Aug-15	10:50	Surface Water	X	X	X	X	X	X	X	7
12	C41-AUG	25-Aug-15	10:15	Surface Water	X	X	X	X	X	X	X	7

L1667195-COFC

~~SHORT HOLDING TIME~~ ~~Rush Processing~~

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Eric Franz	26-Aug-15	09:00	lady	Sept. 2	11AM	15.2 °C 17.3 16.2/15.0				

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact: Brent Mack	Sampler: Eric Franz

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	P TOC, Ammonia, TKN, Total P	F/P DOC	P T-CN (Low), Free CN (Low)	P Total mercury	F/P Dissolved mercury	P Total Metals	F/P Dissolved Metals						Number of Containers
13	AMARUQ AUG EB-1	25-Aug-15		Surface Water	X	X	X	X	X	X	X						7
14	WTN-03-S	20-Aug-15	16:30	Surface Water	X	X	X	X	X	X	X						7
15	WTN-04-S	20-Aug-15	17:30	Surface Water	X	X	X	X	X	X	X						7
16	AMARUQ AUG TRAV-1	-	-	Surface Water	X	X	X	X		X							4

L1667195-COFC

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Eric Franz	26-Aug-15	08:00	lady	Sept. 2	11AM	15.2 17.3 °C 16.2/15.0				

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 03-SEP-15
Report Date: 16-SEP-15 16:25 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1667870

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers:
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1667870-1	L1667870-2	L1667870-3	L1667870-4	L1667870-5
	Description	Other	Other	Other	Other	Other
	Sampled Date	21-AUG-15	21-AUG-15	23-AUG-15	23-AUG-15	24-AUG-15
	Sampled Time	11:30	12:30	13:10	11:20	13:05
	Client ID	WTS-03-S	WTS-04-S	NEM-03-S	NEM-04-S	MAM-03-S
Grouping	**Analyte**					
FILTER						
Plant Pigments	Chlorophyll a (ug/L)	0.665	0.640	0.324	0.390	0.392

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1667870-6	L1667870-7	L1667870-8	L1667870-9	L1667870-10
Description	Other	Other	Other	Other	Other
Sampled Date	24-AUG-15		25-AUG-15	25-AUG-15	25-AUG-15
Sampled Time	12:30		12:20	11:55	11:25
Client ID	MAM-04-S	AMARUQ AUG DUP-1	C2-AUG	C14-AUG	C17-AUG
Grouping **Analyte**					
FILTER					
Plant Pigments Chlorophyll a (ug/L)	0.471	0.798	0.580	0.627	0.844

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1667870-11	L1667870-12	L1667870-13	L1667870-14	
	Description	Other	Other	Other	Other	
	Sampled Date	25-AUG-15	25-AUG-15	20-AUG-15	20-AUG-15	
	Sampled Time	10:50	10:15	16:30	17:30	
	Client ID	C20-AUG	C41-AUG	WTN-03-S	WTN-04-S	
Grouping	**Analyte**					
FILTER						
Plant Pigments	Chlorophyll a (ug/L)	0.394	0.463	0.652	0.696	

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CHLOROA-F-VA	Filter	Chlorophyll a by Fluorometer (Filter)	EPA 445.0

This analysis is done using procedures modified from EPA Method 445.0. Chlorophyll-a is determined by a routine acetone extraction followed with analysis by fluorometry using the non-acidification procedure. This method is not subject to interferences from chlorophyll b.

** 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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg 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.

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To				Report Format / Distribution				Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group			☑ Standard	☐ Other			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz			☑ PDF	☑ Excel	☐ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway			Email 1:	efranz@azimuthgroup.ca			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8			Email 2:	gmann@azimuthgroup.ca			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220	Fax:		Email 3:	ryan.vanengen@agnicoeagle.com			Analysis Request
Invoice To	Same as Report ?	☑ Yes	☐ No	Client / Project Information				Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?		☐ Yes	☑ No	Job #:	Amaruq Surfacewater			
Company:				PO / AFE:				
Contact:				LSD:				
Address:								
Phone:		Fax:		Quote #:	Q39503			
Lab Work Order # (lab use only)				ALS Contact:	Brent Mack	Sampler:	Eric Franz	

Sample #	Sample Identification (This description will appear on the r	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Chlorophyl 'a'												Number of Containers
	WTS-03-S	21-Aug-15	11:30	Other	X												1
	WTS-04-S	21-Aug-15	12:30	Other	X												1
	NEM-03-S	23-Aug-15	13:10	Other	X												1
	NEM-04-S	23-Aug-15	11:20	Other	X												1
	MAM-03-S	24-Aug-15	13:05	Other	X												1
	MAM-04-S	24-Aug-15	12:30	Other	X												1
	AMARUQ AUG DUP-1	-	-	Other	X												1
	C2-AUG	25-Aug-15	12:20	Other	X												1
	C14-AUG	25-Aug-15	11:55	Other	X												1
	C17-AUG	25-Aug-15	11:25	Other	X												1
	C20-AUG	25-Aug-15	10:50	Other	X												1
	C41-AUG	25-Aug-15	10:15	Other	X												1

Short Holding Time

Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Eric Franz	31 Aug 015	9:00				16 °C	EC	Sep 3/15	1111	

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: qmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vaneng@agnicoeagle.com	Analysis Request
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact: Brent Mack	Sampler: Eric Franz

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Chlorophyll 'a'	Number of Containers
	WTN-03-S	20-Aug-15	16:30	Other	X	1
	WTN-04-S	20-Aug-15	17:30	Other	X	1

L1667870-COFC

Short Holding Time

Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Eric Franz	31-Aug-15	9:00				16 °C	EZ	Sep 3/15	11:00	

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 10-AUG-15
Report Date: 17-AUG-15 13:47 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1655097

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers: E-1
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1655097-1 SURFACE WATE 04-AUG-15 11:05 A12-A11	L1655097-2 SURFACE WATE 04-AUG-15 13:40 A17-A16	L1655097-3 SURFACE WATE 04-AUG-15 08:30 A1-DS1	L1655097-4 SURFACE WATE 04-AUG-15 16:40 C58 OUTLET	
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
WATER						
Physical Tests	Conductivity (uS/cm)	23.9	15.0	16.1	24.4	
	pH (pH)	6.81	6.80	6.77	6.98	
	Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Total Dissolved Solids (mg/L)	17.7	13.7	13.2	18.9	
	Turbidity (NTU)	0.24	0.26	0.29	0.23	
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	5.8	5.0	5.0	7.2	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Alkalinity, Total (as CaCO3) (mg/L)	5.8	5.0	5.0	7.2	
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	
	Chloride (Cl) (mg/L)	1.73	0.68	0.74	0.51	
	Fluoride (F) (mg/L)	0.025	0.031	0.028	0.023	
	Nitrate (as N) (mg/L)	0.0065	<0.0050	<0.0050	<0.0050	
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	
	Silicate (as SiO2) (mg/L)	0.58	0.81	<0.50	<0.50	
	Sulfate (SO4) (mg/L)	2.57	0.85	1.32	3.03	

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CL-L-IC-N-VA	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
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-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-TD-COL-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
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.			
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
SILICATE-COL-VA	Water	Silicate by Colourimetric analysis	APHA 4500-SiO2 E.
This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.			
SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TDS-LOW-VA	Water	Low Level TDS (3.0mg/L) by Gravimetric	APHA 2540C
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-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540D
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.			
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:

Reference Information

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

Chain of Custody Numbers:

E-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.

ALS Environmental

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Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
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COC # E-1
Page 1 of 1

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☒ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☒ PDF ☒ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact:	Sampler: J. Neuil

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conventionals** see notes	TSS-Low, TDS-Low	Number of Containers
	A12-A11	4-Aug-15	11:05	Surface Water	X	X	2
	A17-A16	4-Aug-15	13 40	Surface Water	X	X	
	A1-DS1	4-Aug-15	08 30	Surface Water	X	X	
	CS8 Outlet	4-Aug-15	16 40	Surface Water	X	X	

Short Holding Time

● *Rush Processing*

L1655097-COFC

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

**Conventionals includes: Alk Species, pH, EC, Turbidity, Conductivity, Anions (F, NO2, NO3, Br, SO4), low-level Chloride, Silicate, TD-P, and Ortho-PO4.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
J Neuil	5-Aug-15	0800	Slater	August 10	1130	20 °C				

GENF 20.00 Front

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 14-AUG-15
Report Date: 20-AUG-15 16:25 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1658117

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers: 2
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1658117-1 Surface Water 05-AUG-15 08:30 A8-A7	L1658117-2 Surface Water 05-AUG-15 12:30 D1	L1658117-3 Surface Water 06-AUG-15 08:40 B5-B4	L1658117-4 Surface Water 06-AUG-15 16:15 A20-A19	L1658117-5 Surface Water 07-AUG-15 10:45 A34-A16
Sample ID **Description** **Sampled Date** **Sampled Time** **Client ID**						
WATER						
Physical Tests	Conductivity (uS/cm)	23.2	22.0	21.6	13.8	14.7
	pH (pH)	6.95	7.02	6.92	6.84	6.79
	Total Suspended Solids (mg/L)	<1.0	<1.0	1.8	<1.0	1.7
	Total Dissolved Solids (mg/L)	19.1	20.0	17.9	15.8	16.4
	Turbidity (NTU)	0.24	0.37	0.30	0.35	0.57
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	6.4	7.1	5.8	4.8	5.0
	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)	6.4	7.1	5.8	4.8	5.0
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	0.94	0.95	1.11	0.59	0.56
	Fluoride (F) (mg/L)	0.025	0.038	0.028	0.029	0.039
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	0.0123	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020	<0.0020	0.0043	<0.0020
	Silicate (as SiO2) (mg/L)	0.87	<0.50	0.76	1.25	0.72
	Sulfate (SO4) (mg/L)	2.64	1.23	2.39	0.73	1.12

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1658117-6 Surface Water 08-AUG-15 09:00 C8-C7	L1658117-7 Surface Water 08-AUG-15 11:50 A101-A100	L1658117-8 Surface Water 05-AUG-15 08:40 E3-E2		
	Sample ID	L1658117-6	L1658117-7	L1658117-8		
	Description	Surface Water	Surface Water	Surface Water		
	Sampled Date	08-AUG-15	08-AUG-15	05-AUG-15		
	Sampled Time	09:00	11:50	08:40		
	Client ID	C8-C7	A101-A100	E3-E2		
WATER						
Physical Tests	Conductivity (uS/cm)	26.4	12.6	23.0		
	pH (pH)	7.15	6.74	6.97		
	Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0		
	Total Dissolved Solids (mg/L)	21.5	13.8	19.5		
	Turbidity (NTU)	0.22	0.31	0.27		
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	9.4	3.9	6.3		
	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)	9.4	3.9	6.3		
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050		
	Chloride (Cl) (mg/L)	0.49	0.65	0.94		
	Fluoride (F) (mg/L)	0.033	0.027	0.025		
	Nitrate (as N) (mg/L)	<0.0050	0.0055	<0.0050		
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010		
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010		
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020	<0.0020		
	Silicate (as SiO2) (mg/L)	1.43	0.92	0.88		
	Sulfate (SO4) (mg/L)	2.26	0.71	2.64		

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Alkalinity, Total (as CaCO3)	B	L1658117-1, -2, -3, -4, -5, -6, -8
Method Blank	Alkalinity, Total (as CaCO3)	B	L1658117-7
Method Blank	Alkalinity, Total (as CaCO3)	B	L1658117-7
Matrix Spike	Phosphorus (P)-Total Dissolved	MS-B	L1658117-1, -2, -3, -4, -5, -6, -7, -8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
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-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CL-L-IC-N-VA	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
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-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-TD-COL-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
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.			
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
SILICATE-COL-VA	Water	Silicate by Colourimetric analysis	APHA 4500-SiO2 E.
This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.			
SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TDS-LOW-VA	Water	Low Level TDS (3.0mg/L) by Gravimetric	APHA 2540C

Reference Information

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-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540D

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.

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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

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 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.

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COC # 2
Page 1 of 1

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☒ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☒ PDF ☒ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:		Quote #: Q39503	
Lab Work (lab use)	L1658117-COFC	ALS Contact:	Sampler: J Nev; 11

Sample #	(This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conventionals** see notes	TSS-Low, TDS-Low	Number of Containers
	A8-A7	5-Aug-15	0830	Surface Water	X	X	2
	D1	5-Aug-15	12:30	↓	X	X	2
	B5-B4	6-Aug-15	0840		X	X	2
	A20-A19	6-Aug-15	16:15		X	X	2
	A34-A16	7-Aug-15	10:45		X	X	2
	C8-C7	8-Aug-15	9:00		X	X	2
	A101-A100	8-Aug-15	11:50		X	X	2
	E3-E2	5-Aug-15	0840	↓	X	X	2

Short Holding Time
Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

**Conventionals includes: Alk Species, pH, EC, Turbidity, Conductivity, Anions (F, NO2, NO3, Br, SO4), low-level Chloride, Silicate, TD-P, and Ortho-PO4.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
J Nev; 11	10-Aug-15	0900	Jeav	14Aug	10:15	6.5 °C				

GENF 20.00 Front

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 18-AUG-15
Report Date: 27-AUG-15 17:42 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1659270

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers: 3
Legal Site Desc:

Comments: ADDITIONAL 27-AUG-15 17:31

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1659270-1	L1659270-2	L1659270-3	L1659270-4	L1659270-5
	Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	04-AUG-15	04-AUG-15	04-AUG-15	04-AUG-15	06-AUG-15
	Sampled Time	08:00	10:30	13:10	16:28	08:40
	Client ID	A1-D51	A12-A11	A17-A16	C58 OUTLET	B5-B4
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	5.77	8.98	5.31	9.68	7.84
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	0.0050	0.0073	<0.0050	<0.0050	<0.0050
	Total Kjeldahl Nitrogen (mg/L)	0.144	0.144	0.152	0.124	0.143
	Phosphorus (P)-Total (mg/L)	0.0026	<0.0020	0.0023	<0.0020	<0.0020
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cyanide, Free (mg/L)	<0.0010	0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.92	1.84	1.88	1.60	1.57
	Total Organic Carbon (mg/L)	1.90	1.70	1.63	1.47	1.56
Total Metals	Aluminum (Al)-Total (mg/L)	0.0090	0.0084	0.0085	0.0049	0.0088
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00010	0.00035	0.00011	0.00030	0.00020
	Barium (Ba)-Total (mg/L)	0.00301	0.00473	0.00371	0.00389	0.00457
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	0.000051	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	1.51	2.30	1.33	2.26	1.94
	Chromium (Cr)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.051	0.017	0.057	0.015	0.035
	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)	0.46	0.79	0.50	1.02	0.71
	Manganese (Mn)-Total (mg/L)	0.00162	0.00075	0.00080	0.00386	0.00097
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Total (mg/L)	<0.00050	0.00066	<0.00050	0.00052	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	0.37	0.57	0.41	0.63	0.59
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	0.265	0.354	0.464	0.219	0.344
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	0.620	0.577	0.656	0.506	0.542
	Strontium (Sr)-Total (mg/L)	0.00727	0.0115	0.00714	0.00961	0.00825
	Sulfur (S)-Total (mg/L)	0.56	0.94	<0.50	1.10	0.82

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1659270-6				
	Description	QA				
	Sampled Date	04-AUG-15				
	Sampled Time	08:00				
	Client ID	TRAVEL BLANK				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	<0.50				
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	<0.0050				
	Total Kjeldahl Nitrogen (mg/L)	<0.050				
	Phosphorus (P)-Total (mg/L)	<0.0020				
Cyanides	Cyanide, Total (mg/L)	<0.0010				
	Cyanide, Free (mg/L)	<0.0010				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)					
	Total Organic Carbon (mg/L)	<0.50				
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0030				
	Antimony (Sb)-Total (mg/L)	<0.00010				
	Arsenic (As)-Total (mg/L)	<0.00010				
	Barium (Ba)-Total (mg/L)	<0.000050				
	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)	<0.0000050				
	Calcium (Ca)-Total (mg/L)	<0.050				
	Chromium (Cr)-Total (mg/L)	<0.00010				
	Cobalt (Co)-Total (mg/L)	<0.00010				
	Copper (Cu)-Total (mg/L)	<0.00050				
	Iron (Fe)-Total (mg/L)	<0.010				
	Lead (Pb)-Total (mg/L)	<0.000050				
	Lithium (Li)-Total (mg/L)	<0.0010				
	Magnesium (Mg)-Total (mg/L)	<0.10				
	Manganese (Mn)-Total (mg/L)	<0.00010				
	Mercury (Hg)-Total (mg/L)	<0.0000050				
	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				
	Selenium (Se)-Total (mg/L)	<0.000050				
	Silicon (Si)-Total (mg/L)	<0.050				
	Silver (Ag)-Total (mg/L)	<0.000010				
	Sodium (Na)-Total (mg/L)	<0.050				
	Strontium (Sr)-Total (mg/L)	<0.00020				
	Sulfur (S)-Total (mg/L)	<0.50				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1659270-1	L1659270-2	L1659270-3	L1659270-4	L1659270-5
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	04-AUG-15	04-AUG-15	04-AUG-15	04-AUG-15	06-AUG-15
Sampled Time	08:00	10:30	13:10	16:28	08:40
Client ID	A1-D51	A12-A11	A17-A16	C58 OUTLET	B5-B4
Grouping / **Analyte**					
WATER					
Total Metals 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	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Total (mg/L)	0.000035	0.000028	0.000027	<0.000010	0.000025
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	<0.0030	<0.0030
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)	0.0040	0.0022	0.0040	0.0018	0.0033
Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Dissolved (mg/L)	<0.00010	0.00032	<0.00010	0.00029	0.00016
Barium (Ba)-Dissolved (mg/L)	0.00353	0.00614 DTC	0.00483 DTC	0.00410	0.00742 DTC
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	<0.0000050	<0.0000050	<0.0000050	0.0000063
Calcium (Ca)-Dissolved (mg/L)	1.54	2.29	1.33	2.23	1.97
Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Dissolved (mg/L)	0.00032	0.00080	0.00032	0.00026	0.00082
Iron (Fe)-Dissolved (mg/L)	0.014	<0.010	0.025	<0.010	0.012
Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000137
Lithium (Li)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Dissolved (mg/L)	0.47	0.79	0.49	1.00	0.71
Manganese (Mn)-Dissolved (mg/L)	0.00065	0.00059	0.00041	0.00042	0.00055
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00061	<0.00050	<0.00050	<0.00050
Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)	0.37	0.57	0.40	0.59	0.60
Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Dissolved (mg/L)	0.253	0.358	0.447	0.209	0.340
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	0.555	0.676	0.672	0.511	0.649
Strontium (Sr)-Dissolved (mg/L)	0.00663	0.0110	0.00701	0.00930	0.00824
Sulfur (S)-Dissolved (mg/L)	<0.50	0.93	<0.50	1.07	0.83

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1659270-6				
	Description	QA				
	Sampled Date	04-AUG-15				
	Sampled Time	08:00				
	Client ID	TRAVEL BLANK				
Grouping	**Analyte**					
WATER						
Total Metals	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				
	Vanadium (V)-Total (mg/L)	<0.00050				
	Zinc (Zn)-Total (mg/L)	<0.0030				
	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)					
	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)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1659270-1	L1659270-2	L1659270-3	L1659270-4	L1659270-5
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	04-AUG-15	04-AUG-15	04-AUG-15	04-AUG-15	06-AUG-15
Sampled Time	08:00	10:30	13:10	16:28	08:40
Client ID	A1-D51	A12-A11	A17-A16	C58 OUTLET	B5-B4
Grouping / **Analyte**					
WATER					
Dissolved Metals Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved (mg/L)	<0.00010	0.00012	<0.00010	<0.00010	0.00027
Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved (mg/L)	0.000028	0.000023	0.000021	<0.000010	0.000025
Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
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	L1659270-6				
	Description	QA				
	Sampled Date	04-AUG-15				
	Sampled Time	08:00				
	Client ID	TRAVEL BLANK				
Grouping	**Analyte**					
WATER						
Dissolved Metals	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)
Duplicate	Bismuth (Bi)-Total	DLA	L1659270-6
Duplicate	Cadmium (Cd)-Total	DLA	L1659270-6
Duplicate	Lead (Pb)-Total	DLA	L1659270-6
Duplicate	Silver (Ag)-Total	DLA	L1659270-6
Duplicate	Thallium (Tl)-Total	DLA	L1659270-6
Duplicate	Tin (Sn)-Total	DLA	L1659270-6
Duplicate	Titanium (Ti)-Total	DLA	L1659270-6
Duplicate	Vanadium (V)-Total	DLA	L1659270-6
Duplicate	Zinc (Zn)-Total	DLA	L1659270-6
Duplicate	Zirconium (Zr)-Total	DLA	L1659270-6
Duplicate	Bismuth (Bi)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Duplicate	Cadmium (Cd)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Duplicate	Chromium (Cr)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Duplicate	Cobalt (Co)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Duplicate	Lead (Pb)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Duplicate	Silver (Ag)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Duplicate	Thallium (Tl)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Duplicate	Titanium (Ti)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Duplicate	Vanadium (V)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Duplicate	Zirconium (Zr)-Dissolved	DLA	L1659270-1, -2, -3, -4, -5
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Total Organic Carbon	MS-B	L1659270-3
Matrix Spike	Total Organic Carbon	MS-B	L1659270-3
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659270-1, -2, -3, -4, -5

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
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**
BE-D-L-CCMS-VA	Water	Diss. Be (low) in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Reference Information

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.

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CARBONS-TOC-VA Water Total organic carbon by combustion APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CN-FREE-L-CFA-VA Water Low Level Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

CN-T-L-CFA-VA Water Low Level 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.

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.

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-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

Reference Information

of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

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

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

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.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

** 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

Chain of Custody Numbers:

3

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.

ALS Environmental

Ground Shipping

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # 3
Page 1 of 1

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☒ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☒ PDF ☒ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact:	Sampler: J Neuil

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	TOC, Ammonia, TKN, Total P	DOC	T-CN (Low), Free CN (Low)	Total mercury	Dissolved mercury	Total Metals	Dissolved Metals	Number of Containers
	A1-D51	4-Aug-15	0800	Surface Water	X	X	X	X	X	X	X	7
	A12-A11	4-Aug-15	10:30	Surface water	X	X	X	X	X	X	X	7
	A17-A16	4-Aug-15	13:10	"	X	X	X	X	X	X	X	7
	C58 Outlet	4-Aug-15	16:28	"	X	X	X	X	X	X	X	7
	B5-B4	6-Aug-15	0840	"	X	X	X	X	X	X	X	7
	Travel blank	—	—	QA	X	X	X	X	X	X	X	5

Short Holding Time
Rush Processing

L1659270-COFC

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
J Neuil	10-Aug-15	0900	Shafel	Aug 18	1215	20/20 °C				

GENF 20.00 Front

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 18-AUG-15
Report Date: 26-AUG-15 17:33 (MT)
Version: FINAL REV. 2

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1659279

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers: 4
Legal Site Desc:

Comments: Please note Dissolved S data has been removed from this report, as requested, for sample D1 only, due to the possibility of improper preservation and, therefore, field contamination.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1659279-1	L1659279-2	L1659279-3	L1659279-4	L1659279-5
	Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	06-AUG-15	05-AUG-15	05-AUG-15	05-AUG-15	08-AUG-15
	Sampled Time	16:15	08:40	13:00	08:40	11:50
	Client ID	A20-A19	A8-A7	D1	E3-E2	A101-A100
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	4.45	8.22	8.43	8.40	4.17
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	0.0057	0.0061	<0.0050
	Total Kjeldahl Nitrogen (mg/L)	0.142	0.150	0.157	0.132	0.123
	Phosphorus (P)-Total (mg/L)	0.0026	<0.0020	0.0028	0.0048	0.0026
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.96	1.74	2.24	1.86	1.75
	Total Organic Carbon (mg/L)	2.08	1.63	2.30	1.46	1.86
Total Metals	Aluminum (Al)-Total (mg/L)	0.0170	0.0064	0.0144	0.0060	0.0102
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	<0.00010	0.00023	0.00014	0.00023	<0.00010
	Barium (Ba)-Total (mg/L)	0.00355	0.00473	0.00275	0.00475	0.00173
	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)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	1.21	2.09	1.95	2.21	1.24
	Chromium (Cr)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.038	0.017	0.028	0.016	0.031
	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)	0.41	0.72	0.85	0.80	0.29
	Manganese (Mn)-Total (mg/L)	0.00077	0.00225	0.00238	0.00179	0.00240
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000060
	Nickel (Ni)-Total (mg/L)	<0.00050	0.00054	<0.00050	0.00052	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	0.38	0.53	0.34	0.61	0.27
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	0.571	0.372	0.195	0.401	0.412
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	0.632	0.541	0.727	0.537	0.580
	Strontium (Sr)-Total (mg/L)	0.00699	0.00899	0.00610	0.00903	0.00556
	Sulfur (S)-Total (mg/L)	<0.50	0.91	<0.50	1.00	<0.50

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1659279-6	L1659279-7			
	Description	Surface Water	Surface Water			
	Sampled Date	08-AUG-15	07-AUG-15			
	Sampled Time	09:00	10:45			
	Client ID	C8-C7	A34-A16			
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	10.6	5.19			
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050			
	Total Kjeldahl Nitrogen (mg/L)	0.095	0.193			
	Phosphorus (P)-Total (mg/L)	<0.020 DLM	0.0038			
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010			
	Cyanide, Free (mg/L)	<0.0010	<0.0010			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.35	2.33			
	Total Organic Carbon (mg/L)	1.41	2.43			
Total Metals	Aluminum (Al)-Total (mg/L)	0.0051	0.0211			
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010			
	Arsenic (As)-Total (mg/L)	0.00036	0.00018			
	Barium (Ba)-Total (mg/L)	0.00991	0.00218			
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020			
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050			
	Boron (B)-Total (mg/L)	<0.010	<0.010			
	Cadmium (Cd)-Total (mg/L)	<0.0000050	<0.0000050			
	Calcium (Ca)-Total (mg/L)	2.47	0.906			
	Chromium (Cr)-Total (mg/L)	<0.00010	0.00015			
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010			
	Copper (Cu)-Total (mg/L)	<0.00050	0.00072			
	Iron (Fe)-Total (mg/L)	<0.010	0.161			
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050			
	Lithium (Li)-Total (mg/L)	<0.0010	<0.0010			
	Magnesium (Mg)-Total (mg/L)	1.09	0.69			
	Manganese (Mn)-Total (mg/L)	0.00269	0.00257			
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Total (mg/L)	0.000966	0.000083			
	Nickel (Ni)-Total (mg/L)	0.00056	0.00076			
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050			
	Potassium (K)-Total (mg/L)	0.50	0.37			
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050			
	Silicon (Si)-Total (mg/L)	0.634	0.335			
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010			
	Sodium (Na)-Total (mg/L)	0.625	0.614			
	Strontium (Sr)-Total (mg/L)	0.0119	0.00523			
	Sulfur (S)-Total (mg/L)	0.83	<0.50			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1659279-1	L1659279-2	L1659279-3	L1659279-4	L1659279-5
	Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	06-AUG-15	05-AUG-15	05-AUG-15	05-AUG-15	08-AUG-15
	Sampled Time	16:15	08:40	13:00	08:40	11:50
	Client ID	A20-A19	A8-A7	D1	E3-E2	A101-A100
Grouping	**Analyte**					
WATER						
Total Metals	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)	0.00033	<0.00030	<0.00030	<0.00030	<0.00030
	Uranium (U)-Total (mg/L)	0.000048	0.000021	0.000045	0.000021	0.000052
	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	<0.0030	<0.0030
	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)	0.0060	0.0027	0.0054	0.0033	0.0034
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	<0.00010	0.00020	0.00015	0.00020	<0.00010
	Barium (Ba)-Dissolved (mg/L)	0.00655 DTC	0.00748 DTC	0.00313	0.00802 DTC	0.00256 DTC
	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	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	1.16	2.11	1.98	2.15	1.20
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00069	0.00063	0.00064	0.00059	0.00053
	Iron (Fe)-Dissolved (mg/L)	0.014	<0.010	0.011	<0.010	<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)	0.38	0.72	0.85	0.74	0.28
	Manganese (Mn)-Dissolved (mg/L)	0.00046	0.00096	0.00068	0.00094	0.00062
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000054
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00052	<0.00050	0.00052	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	0.34	0.54	0.32	0.55	0.27
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Dissolved (mg/L)	0.536	0.369	0.191	0.390	0.386
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	0.767	0.629	0.820	0.658 DTC	0.649
	Strontium (Sr)-Dissolved (mg/L)	0.00669	0.00870	0.00618	0.00868	0.00533
	Sulfur (S)-Dissolved (mg/L)	<0.50	0.89		0.89	<0.50

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1659279-6	L1659279-7			
	Description	Surface Water	Surface Water			
	Sampled Date	08-AUG-15	07-AUG-15			
	Sampled Time	09:00	10:45			
	Client ID	C8-C7	A34-A16			
Grouping	**Analyte**					
WATER						
Total Metals	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010			
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010			
	Titanium (Ti)-Total (mg/L)	<0.00030	0.00048			
	Uranium (U)-Total (mg/L)	0.000020	0.000069			
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050			
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030			
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030			
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD			
	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	0.0026	0.0073			
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010			
	Arsenic (As)-Dissolved (mg/L)	0.00034	0.00015			
	Barium (Ba)-Dissolved (mg/L)	0.0115	0.00376 DTC			
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020			
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050			
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010			
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	<0.0000050			
	Calcium (Ca)-Dissolved (mg/L)	2.47	0.922			
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00010			
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010			
	Copper (Cu)-Dissolved (mg/L)	0.00047	0.00074			
	Iron (Fe)-Dissolved (mg/L)	<0.010	0.080			
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050			
	Lithium (Li)-Dissolved (mg/L)	<0.0010	<0.0010			
	Magnesium (Mg)-Dissolved (mg/L)	1.08	0.70			
	Manganese (Mn)-Dissolved (mg/L)	0.00108	0.00179			
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Dissolved (mg/L)	0.000126	<0.000050			
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00069			
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050			
	Potassium (K)-Dissolved (mg/L)	0.53	0.44			
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050			
	Silicon (Si)-Dissolved (mg/L)	0.636	0.324			
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	0.698	0.701			
	Strontium (Sr)-Dissolved (mg/L)	0.0124	0.00483			
	Sulfur (S)-Dissolved (mg/L)	0.80	<0.50			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1659279-1 Surface Water 06-AUG-15 16:15 A20-A19	L1659279-2 Surface Water 05-AUG-15 08:40 A8-A7	L1659279-3 Surface Water 05-AUG-15 13:00 D1	L1659279-4 Surface Water 05-AUG-15 08:40 E3-E2	L1659279-5 Surface Water 08-AUG-15 11:50 A101-A100
WATER						
Dissolved Metals	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)	0.00016	0.00012	0.00013	0.00013	0.00013
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Uranium (U)-Dissolved (mg/L)	0.000044	0.000017	0.000043	0.000018	0.000045
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	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	L1659279-6	L1659279-7			
	Description	Surface Water	Surface Water			
	Sampled Date	08-AUG-15	07-AUG-15			
	Sampled Time	09:00	10:45			
	Client ID	C8-C7	A34-A16			
Grouping	**Analyte**					
WATER						
Dissolved Metals	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010			
	Tin (Sn)-Dissolved (mg/L)	0.00011	<0.00010			
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030			
	Uranium (U)-Dissolved (mg/L)	0.000018	0.000054			
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050			
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010			
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030			

* 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	L1659279-1, -2, -3, -4, -5, -6, -7
Duplicate	Cadmium (Cd)-Dissolved	DLA	L1659279-1, -2, -3, -4, -5, -6, -7
Duplicate	Chromium (Cr)-Dissolved	DLA	L1659279-1, -2, -3, -4, -5, -6, -7
Duplicate	Cobalt (Co)-Dissolved	DLA	L1659279-1, -2, -3, -4, -5, -6, -7
Duplicate	Lead (Pb)-Dissolved	DLA	L1659279-1, -2, -3, -4, -5, -6, -7
Duplicate	Silver (Ag)-Dissolved	DLA	L1659279-1, -2, -3, -4, -5, -6, -7
Duplicate	Thallium (Tl)-Dissolved	DLA	L1659279-1, -2, -3, -4, -5, -6, -7
Duplicate	Titanium (Ti)-Dissolved	DLA	L1659279-1, -2, -3, -4, -5, -6, -7
Duplicate	Vanadium (V)-Dissolved	DLA	L1659279-1, -2, -3, -4, -5, -6, -7
Duplicate	Zirconium (Zr)-Dissolved	DLA	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Phosphorus (P)-Total	MS-B	L1659279-1, -2, -3, -4, -5, -7
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Total Organic Carbon	MS-B	L1659279-4
Matrix Spike	Total Organic Carbon	MS-B	L1659279-4
Matrix Spike	Phosphorus (P)-Total	MS-B	L1659279-6
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1659279-1, -2, -3, -4, -5, -6, -7

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
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**
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.

		Dissolved organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)

Reference Information

CARBONS-DOC-VA Water

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CARBONS-TOC-VA Water Total organic carbon by combustion APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CN-FREE-L-CFA-VA Water Low Level Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

CN-T-L-CFA-VA Water Low Level 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.

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.

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-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.

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

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

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

Reference Information

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.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

** 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

Chain of Custody Numbers:

4

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.

ALS Environmental

Ground Shipping

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # 4
Page 1 of 1

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☒ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☒ PDF ☒ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	**Client / Project Information**	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact:	Sampler: J Neuil

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	P TOC, Ammonia, TKN, Total P	F/P DOC	P T-CN (Low), Free CN (Low)	P Total mercury	F/P Dissolved mercury	P Total Metals	F/P Dissolved Metals	Number of Containers
	A20-A19	6-Aug-15	16:15	Surface Water	X	X	X	X	X	X	X	7
	AB-A7	5-Aug-15	08 40		X	X	X	X	X	X	X	7
	D1	5-Aug-15	13:00		X	X	X	X	X	X	X	7
	E3-E2	5-Aug-15	08 40		X	X	X	X	X	X	X	7
	A101-A100	8-Aug-15	11:50		X	X	X	X	X	X	X	7
	C8-C7	8-Aug-15	0900		X	X	X	X	X	X	X	7
	A34-A16	7-Aug-15	10:45		X	X	X	X	X	X	X	7

Short Holding Time
• Rush Processing

L1659279-COFC

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
J. Neuil	10 Aug 15	0900	Shafer	Aug 18	1215	20/20 °C				

AZIMUTH CONSULTING GROUP INC.
ATTN: Maggie McConnell
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 09-SEP-15
Report Date: 22-SEP-15 14:32 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1669874

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SEDIMENT
C of C Numbers: 2, 3, OL-1767
Legal Site Desc:

Comments: Please note that Silver (Ag) results for Filter samples are denoted with 'RRR' qualifiers due to a failing Laboratory Control Standard associated with those results. Due to the destructive nature of Filter analysis the testing could not be repeated and the results for Silver (Ag) should be considered approximate values.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1669874-34 Filter 22-AUG-15 AMARUQ SWIPE-1	L1669874-35 Filter 21-AUG-15 AMARUQ SWIPE-2	L1669874-36 Filter 24-AUG-15 AMARUQ SWIPE-3	L1669874-37 Filter 24-AUG-15 AMARUQ SWIPE-4
Sample ID		L1669874-34	L1669874-35	L1669874-36	L1669874-37
Description		Filter	Filter	Filter	Filter
Sampled Date		22-AUG-15	21-AUG-15	24-AUG-15	24-AUG-15
Sampled Time					
Client ID		AMARUQ SWIPE-1	AMARUQ SWIPE-2	AMARUQ SWIPE-3	AMARUQ SWIPE-4
FILTER					
Metals	Aluminum (Al)-Total (mg)	0.011	0.018	0.015	<0.010
	Antimony (Sb)-Total (mg)	<0.010	<0.010	<0.010	<0.010
	Arsenic (As)-Total (mg)	<0.010	<0.010	<0.010	<0.010
	Barium (Ba)-Total (mg)	0.00135	0.00147	0.00084	<0.00050
	Beryllium (Be)-Total (mg)	<0.00030	<0.00030	<0.00030	<0.00030
	Bismuth (Bi)-Total (mg)	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg)	<0.00050	<0.00050	<0.00050	<0.00050
	Calcium (Ca)-Total (mg)	<0.050	<0.050	<0.050	<0.050
	Chromium (Cr)-Total (mg)	0.0021	0.0083	0.0042	0.0054
	Cobalt (Co)-Total (mg)	<0.00050	<0.00050	<0.00050	<0.00050
	Copper (Cu)-Total (mg)	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg)	0.0312	0.0696	0.0452	0.0395
	Lead (Pb)-Total (mg)	<0.0030	0.0038	<0.0030	<0.0030
	Lithium (Li)-Total (mg)	<0.00050	<0.00050	<0.00050	<0.00050
	Magnesium (Mg)-Total (mg)	0.0084	0.0170	0.0154	0.0094
	Manganese (Mn)-Total (mg)	0.00147	0.00107	0.00077	0.00060
	Molybdenum (Mo)-Total (mg)	<0.0020	<0.0020	<0.0020	<0.0020
	Nickel (Ni)-Total (mg)	<0.0030	0.0038	<0.0030	<0.0030
	Phosphorus (P)-Total (mg)	<0.020	<0.020	<0.020	<0.020
	Potassium (K)-Total (mg)	<0.10	<0.10	<0.10	<0.10
	Selenium (Se)-Total (mg)	<0.010	<0.010	<0.010	<0.010
	Silver (Ag)-Total (mg)	<0.00050 RRR	<0.00050 RRR	<0.00050 RRR	<0.00050 RRR
	Sodium (Na)-Total (mg)	0.10	<0.10	<0.10	<0.10
	Strontium (Sr)-Total (mg)	<0.00030	<0.00030	<0.00030	<0.00030
	Thallium (Tl)-Total (mg)	<0.010	<0.010	<0.010	<0.010
	Tin (Sn)-Total (mg)	<0.0020	0.0023	<0.0020	<0.0020
	Titanium (Ti)-Total (mg)	0.00059	0.00089	0.00055	<0.00050
	Vanadium (V)-Total (mg)	<0.0020	<0.0020	<0.0020	<0.0020
	Zinc (Zn)-Total (mg)	0.00031	0.00113	0.00095	0.00047

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1669874-1	L1669874-2	L1669874-3	L1669874-4	L1669874-5
Description	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste
Sampled Date	22-AUG-15	22-AUG-15	22-AUG-15	22-AUG-15	22-AUG-15
Sampled Time					
Client ID	WTN-EX-1	WTN-EX-2	WTN-EX-3	WTN-EX-4	WTN-EX-5
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	86.3	86.9	87.9	86.6	89.0
pH (1:2 soil:water) (pH)	6.03	5.80	6.40	6.02	6.16
Particle Size % Gravel (>2mm) (%)	<0.10	<0.10	<0.10	0.15	<0.10
% Sand (2.0mm - 0.063mm) (%)	24.0	9.19	21.7	21.9	9.37
% Silt (0.063mm - 4um) (%)	66.1	79.3	71.1	69.9	82.5
% Clay (<4um) (%)	9.92	11.5	7.16	8.00	8.11
Texture	Silt loam	Silt	Silt loam	Silt loam	Silt
Organic / Inorganic Carbon Total Organic Carbon (%)	6.65	7.08	7.80	7.36	8.66
Metals Aluminum (Al) (mg/kg)	14700	18400	13500	15200	16000
Antimony (Sb) (mg/kg)	0.27	0.29	0.29	0.29	0.35
Arsenic (As) (mg/kg)	69.4	147	79.5	81.7	139
Barium (Ba) (mg/kg)	98.0	129	102	107	106
Beryllium (Be) (mg/kg)	1.12	1.53	1.06	1.14	1.32
Bismuth (Bi) (mg/kg)	0.33	0.47	0.33	0.34	0.40
Boron (B) (mg/kg)	10.0	10.3	10.0	10.1	12.5
Cadmium (Cd) (mg/kg)	0.297	0.481	0.304	0.334	0.375
Calcium (Ca) (mg/kg)	3310	2950	3220	3340	3710
Chromium (Cr) (mg/kg)	162	197	169	176	176
Cobalt (Co) (mg/kg)	13.6	17.0	15.0	15.8	14.9
Copper (Cu) (mg/kg)	32.6	50.8	33.5	34.7	40.9
Iron (Fe) (mg/kg)	35200	51700	38600	39000	50900
Lead (Pb) (mg/kg)	10.0	13.3	9.90	10.1	11.4
Lithium (Li) (mg/kg)	16.2	17.6	14.7	16.7	15.4
Magnesium (Mg) (mg/kg)	8770	9750	8870	9440	9030
Manganese (Mn) (mg/kg)	916	816	1170	1230	744
Mercury (Hg) (mg/kg)	0.0597	0.0764	0.0675	0.0667	0.0788
Molybdenum (Mo) (mg/kg)	2.29	4.57	2.39	2.32	3.79
Nickel (Ni) (mg/kg)	90.7	117	91.8	98.9	95.6
Phosphorus (P) (mg/kg)	662	794	716	795	864
Potassium (K) (mg/kg)	1940	2340	1760	2030	2150
Selenium (Se) (mg/kg)	0.40	0.70	0.47	0.48	0.59
Silver (Ag) (mg/kg)	0.21	0.31	0.21	0.23	0.27
Sodium (Na) (mg/kg)	293	339	327	390	506
Strontium (Sr) (mg/kg)	24.4	22.7	21.6	25.6	24.8
Thallium (Tl) (mg/kg)	0.129	0.189	0.130	0.142	0.158
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium (Ti) (mg/kg)	485	537	393	507	500

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1669874-6	L1669874-7	L1669874-8	L1669874-9	L1669874-10
Description	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste
Sampled Date	22-AUG-15	22-AUG-15	22-AUG-15	22-AUG-15	22-AUG-15
Sampled Time					
Client ID	WTN-1	WTN-2	WTN-3	WTN-4	WTN-5
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	85.0	86.8	80.9	87.2	87.2
pH (1:2 soil:water) (pH)	6.29	6.17	5.71	5.67	5.76
Particle Size % Gravel (>2mm) (%)	<0.10	0.41	<0.10	<0.10	0.12
% Sand (2.0mm - 0.063mm) (%)	4.08	4.09	4.68	3.18	4.75
% Silt (0.063mm - 4um) (%)	87.0	86.0	82.6	84.6	83.6
% Clay (<4um) (%)	8.95	9.53	12.6	12.2	11.6
Texture	Silt	Silt	Silt	Silt	Silt
Organic / Inorganic Carbon Total Organic Carbon (%)	4.91	5.20	4.65	5.72	5.20
Metals Aluminum (Al) (mg/kg)	13900	12700	14800	14200	13400
Antimony (Sb) (mg/kg)	0.25	0.27	0.25	0.34	0.27
Arsenic (As) (mg/kg)	897	1000	568	1760	809
Barium (Ba) (mg/kg)	212	586	97.4	180	179
Beryllium (Be) (mg/kg)	1.22	1.18	1.27	1.28	1.18
Bismuth (Bi) (mg/kg)	0.45	0.42	0.47	0.49	0.46
Boron (B) (mg/kg)	7.3	7.2	6.9	7.7	6.4
Cadmium (Cd) (mg/kg)	0.315	0.483	0.151	0.363	0.407
Calcium (Ca) (mg/kg)	1950	2150	2050	2260	1660
Chromium (Cr) (mg/kg)	84.4	80.5	94.5	95.4	87.5
Cobalt (Co) (mg/kg)	24.0	20.0	20.5	25.3	24.0
Copper (Cu) (mg/kg)	37.3	38.4	35.5	41.7	38.6
Iron (Fe) (mg/kg)	151000	146000	127000	179000	139000
Lead (Pb) (mg/kg)	10.9	11.0	11.7	12.8	11.5
Lithium (Li) (mg/kg)	13.4	11.8	14.0	13.1	12.5
Magnesium (Mg) (mg/kg)	5800	5410	6300	6110	5880
Manganese (Mn) (mg/kg)	6660	23500	2200	5430	3900
Mercury (Hg) (mg/kg)	0.0742	0.0827	0.0612	0.0939	0.0795
Molybdenum (Mo) (mg/kg)	6.27	6.91	5.33	8.63	5.81
Nickel (Ni) (mg/kg)	92.0	126	59.9	92.7	108
Phosphorus (P) (mg/kg)	1830	2250	1770	2750	2020
Potassium (K) (mg/kg)	2040	2060	2150	2110	1840
Selenium (Se) (mg/kg)	0.78	0.78	0.75	0.96	0.76
Silver (Ag) (mg/kg)	0.26	0.28	0.23	0.32	0.25
Sodium (Na) (mg/kg)	292	302	257	355	328
Strontium (Sr) (mg/kg)	22.0	29.5	21.6	25.0	19.0
Thallium (Tl) (mg/kg)	0.219	0.240	0.154	0.210	0.236
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium (Ti) (mg/kg)	379	370	413	393	308

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1669874-11	L1669874-12	L1669874-13	L1669874-14	L1669874-15
Description	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste
Sampled Date	22-AUG-15	21-AUG-15	21-AUG-15	21-AUG-15	21-AUG-15
Sampled Time					
Client ID	WTN-COMP	WTS-1	WTS-2	WTS-3	WTS-4
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	88.1	85.5	85.2	87.0	87.0
pH (1:2 soil:water) (pH)		5.48	5.46	5.53	5.76
Particle Size % Gravel (>2mm) (%)		<0.10	<0.10	<0.10	<0.10
% Sand (2.0mm - 0.063mm) (%)		5.41	3.07	2.77	2.75
% Silt (0.063mm - 4um) (%)		82.0	82.4	82.2	84.7
% Clay (<4um) (%)		12.6	14.5	15.0	12.6
Texture		Silt	Silt	Silt	Silt
Organic / Inorganic Carbon Total Organic Carbon (%)		5.29	5.50	6.24	6.41
Metals Aluminum (Al) (mg/kg)		14700	16800	17100	16200
Antimony (Sb) (mg/kg)		0.23	0.26	0.22	0.23
Arsenic (As) (mg/kg)		102	152	80.3	112
Barium (Ba) (mg/kg)		113	120	122	133
Beryllium (Be) (mg/kg)		1.35	1.67	1.47	1.42
Bismuth (Bi) (mg/kg)		0.52	0.58	0.55	0.56
Boron (B) (mg/kg)		6.9	7.9	9.4	8.9
Cadmium (Cd) (mg/kg)		0.410	0.181	0.177	0.299
Calcium (Ca) (mg/kg)		2300	2340	2630	2530
Chromium (Cr) (mg/kg)		63.3	70.0	70.6	68.6
Cobalt (Co) (mg/kg)		16.1	15.9	10.4	13.4
Copper (Cu) (mg/kg)		37.9	45.0	41.4	42.0
Iron (Fe) (mg/kg)		69000	94100	54800	77400
Lead (Pb) (mg/kg)		13.7	13.7	13.0	13.8
Lithium (Li) (mg/kg)		13.1	14.1	15.0	13.7
Magnesium (Mg) (mg/kg)		5690	5720	6250	5900
Manganese (Mn) (mg/kg)		2010	1890	1040	2180
Mercury (Hg) (mg/kg)		0.0764	0.0789	0.0752	0.0952
Molybdenum (Mo) (mg/kg)		3.26	5.57	3.87	3.97
Nickel (Ni) (mg/kg)		73.9	63.6	54.4	67.0
Phosphorus (P) (mg/kg)		1680	1380	1050	1330
Potassium (K) (mg/kg)		2170	2420	2580	2450
Selenium (Se) (mg/kg)		0.67	0.78	0.68	0.82
Silver (Ag) (mg/kg)		0.26	0.29	0.33	0.34
Sodium (Na) (mg/kg)		282	276	344	409
Strontium (Sr) (mg/kg)		22.1	23.2	25.4	24.5
Thallium (Tl) (mg/kg)		0.195	0.181	0.171	0.188
Tin (Sn) (mg/kg)		<2.0	<2.0	<2.0	<2.0
Titanium (Ti) (mg/kg)		407	437	456	425

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID	L1669874-16 Soil/Sed/Waste 21-AUG-15 WTS-5	L1669874-17 Soil/Sed/Waste 21-AUG-15 WTS-COMP	L1669874-18 Soil/Sed/Waste 24-AUG-15 MAM-1	L1669874-19 Soil/Sed/Waste 24-AUG-15 MAM-2	L1669874-20 Soil/Sed/Waste 24-AUG-15 MAM-3
SOIL							
Physical Tests	Moisture (%)		84.4	85.9	89.7	90.7	91.0
	pH (1:2 soil:water) (pH)		5.94		5.85	5.98	5.72
Particle Size	% Gravel (>2mm) (%)		0.82		<0.10	<0.10	<0.10
	% Sand (2.0mm - 0.063mm) (%)		4.49		0.92	2.45	0.72
	% Silt (0.063mm - 4um) (%)		82.2		93.9	92.4	94.0
	% Clay (<4um) (%)		12.5		5.20	5.13	5.33
	Texture		Silt		Silt	Silt	Silt
Organic / Inorganic Carbon	Total Organic Carbon (%)		4.58		11.4	11.7	10.7
Metals	Aluminum (Al) (mg/kg)		16400		19100	18600	19500
	Antimony (Sb) (mg/kg)		0.22		0.29	0.32	0.37
	Arsenic (As) (mg/kg)		118		75.7	143	277
	Barium (Ba) (mg/kg)		104		142	142	153
	Beryllium (Be) (mg/kg)		1.28		1.34	1.29	1.55
	Bismuth (Bi) (mg/kg)		0.53		0.47	0.45	0.53
	Boron (B) (mg/kg)		6.7		19.5	20.8	20.6
	Cadmium (Cd) (mg/kg)		0.224		0.267	0.255	0.300
	Calcium (Ca) (mg/kg)		2030		3620	3370	3310
	Chromium (Cr) (mg/kg)		66.1		161	162	168
	Cobalt (Co) (mg/kg)		23.7		11.4	11.5	13.6
	Copper (Cu) (mg/kg)		39.1		62.5	63.9	75.7
	Iron (Fe) (mg/kg)		89500		34100	43400	61200
	Lead (Pb) (mg/kg)		12.5		17.4	16.5	19.1
	Lithium (Li) (mg/kg)		13.2		18.4	17.1	15.7
	Magnesium (Mg) (mg/kg)		5750		9260	9010	8660
	Manganese (Mn) (mg/kg)		2760		349	414	468
	Mercury (Hg) (mg/kg)		0.0657		0.0987	0.0991	0.0972
	Molybdenum (Mo) (mg/kg)		4.09		3.24	3.73	5.96
	Nickel (Ni) (mg/kg)		60.0		105	102	109
	Phosphorus (P) (mg/kg)		1070		868	911	951
	Potassium (K) (mg/kg)		2340		3090	2950	2990
	Selenium (Se) (mg/kg)		0.75		0.63	0.63	0.84
	Silver (Ag) (mg/kg)		0.24		0.42	0.42	0.48
	Sodium (Na) (mg/kg)		330		424	442	520
	Strontium (Sr) (mg/kg)		21.3		24.8	24.3	24.4
	Thallium (Tl) (mg/kg)		0.199		0.246	0.223	0.245
	Tin (Sn) (mg/kg)		<2.0		<2.0	<2.0	<2.0
	Titanium (Ti) (mg/kg)		447		528	510	565

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1669874-21	L1669874-22	L1669874-23	L1669874-24	L1669874-25
Description	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste
Sampled Date	24-AUG-15	24-AUG-15	24-AUG-15	23-AUG-15	23-AUG-15
Sampled Time					
Client ID	MAM-4	MAM-5	MAM-COMP	NEM-1	NEM-2
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	89.9	89.8	90.9	91.7	85.6
pH (1:2 soil:water) (pH)	5.54	5.40		6.20	6.53
Particle Size % Gravel (>2mm) (%)	<0.10	<0.10		<0.10	0.26
% Sand (2.0mm - 0.063mm) (%)	0.85	1.08		12.5	50.3
% Silt (0.063mm - 4um) (%)	93.1	92.3		77.9	47.1
% Clay (<4um) (%)	6.09	6.60		9.56	2.35
Texture	Silt	Silt		Silt	Sandy loam
Organic / Inorganic Carbon Total Organic Carbon (%)	11.5	10.6		8.19	6.02
Metals Aluminum (Al) (mg/kg)	17000	18400		10800	9250
Antimony (Sb) (mg/kg)	0.25	0.26		0.40	0.22
Arsenic (As) (mg/kg)	68.6	70.0		52.0	13.4
Barium (Ba) (mg/kg)	125	136		98.5	63.1
Beryllium (Be) (mg/kg)	1.14	1.20		0.64	0.46
Bismuth (Bi) (mg/kg)	0.39	0.43		0.23	<0.20
Boron (B) (mg/kg)	17.0	15.3		14.1	9.1
Cadmium (Cd) (mg/kg)	0.269	0.296		0.248	0.180
Calcium (Ca) (mg/kg)	2770	2780		3490	3030
Chromium (Cr) (mg/kg)	141	158		113	96.5
Cobalt (Co) (mg/kg)	11.7	13.3		8.59	6.86
Copper (Cu) (mg/kg)	57.4	60.5		40.0	21.9
Iron (Fe) (mg/kg)	30200	33000		25800	14600
Lead (Pb) (mg/kg)	15.9	16.8		9.33	6.40
Lithium (Li) (mg/kg)	14.7	15.1		9.8	9.9
Magnesium (Mg) (mg/kg)	8380	8900		6450	6640
Manganese (Mn) (mg/kg)	357	408		407	236
Mercury (Hg) (mg/kg)	0.0960	0.0955		0.0299	0.0180
Molybdenum (Mo) (mg/kg)	2.83	2.89		3.84	1.42
Nickel (Ni) (mg/kg)	98.7	107		88.0	64.1
Phosphorus (P) (mg/kg)	764	796		697	518
Potassium (K) (mg/kg)	2710	2990		1470	1210
Selenium (Se) (mg/kg)	0.61	0.67		0.56	0.34
Silver (Ag) (mg/kg)	0.43	0.44		0.18	<0.10
Sodium (Na) (mg/kg)	304	338		430	390
Strontium (Sr) (mg/kg)	20.2	20.6		25.9	25.9
Thallium (Tl) (mg/kg)	0.224	0.249		0.093	0.060
Tin (Sn) (mg/kg)	<2.0	<2.0		<2.0	<2.0
Titanium (Ti) (mg/kg)	451	481		269	333

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1669874-26 Soil/Sed/Waste 23-AUG-15 NEM-3	L1669874-27 Soil/Sed/Waste 23-AUG-15 NEM-4	L1669874-28 Soil/Sed/Waste 23-AUG-15 NEM-5	L1669874-29 Soil/Sed/Waste 23-AUG-15 NEM-COMP	L1669874-30 Soil/Sed/Waste AMARUQ DUP-1
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
SOIL						
Physical Tests	Moisture (%)	90.9	91.3	86.8	90.0	84.3
	pH (1:2 soil:water) (pH)	6.32	6.45	6.49		5.47
Particle Size	% Gravel (>2mm) (%)	<0.10	<0.10	<0.10		0.34
	% Sand (2.0mm - 0.063mm) (%)	19.2	19.0	44.0		4.54
	% Silt (0.063mm - 4um) (%)	76.4	77.4	53.3		82.8
	% Clay (<4um) (%)	4.42	3.60	2.63		12.3
	Texture	Silt loam	Silt loam	Silt loam		Silt
Organic / Inorganic Carbon	Total Organic Carbon (%)	11.1	10.9	5.49		4.61
Metals	Aluminum (Al) (mg/kg)	10800	9990	9610		14300
	Antimony (Sb) (mg/kg)	0.35	0.36	0.20		0.22
	Arsenic (As) (mg/kg)	46.4	79.9	26.1		557
	Barium (Ba) (mg/kg)	91.3	99.3	64.3		92.2
	Beryllium (Be) (mg/kg)	0.59	0.55	0.47		1.09
	Bismuth (Bi) (mg/kg)	0.21	0.22	<0.20		0.40
	Boron (B) (mg/kg)	12.5	13.5	7.7		5.3
	Cadmium (Cd) (mg/kg)	0.221	0.201	0.144		0.137
	Calcium (Ca) (mg/kg)	3690	3160	2280		1720
	Chromium (Cr) (mg/kg)	110	104	106		92.4
	Cobalt (Co) (mg/kg)	7.96	10.2	6.77		19.7
	Copper (Cu) (mg/kg)	36.4	33.1	27.5		33.6
	Iron (Fe) (mg/kg)	23800	32500	18000		122000
	Lead (Pb) (mg/kg)	8.35	8.60	7.16		10.4
	Lithium (Li) (mg/kg)	10.0	8.5	8.5		10.5
	Magnesium (Mg) (mg/kg)	6590	6130	6480		6000
	Manganese (Mn) (mg/kg)	302	861	301		1960
	Mercury (Hg) (mg/kg)	0.0289	0.0320	0.0213		0.0542
	Molybdenum (Mo) (mg/kg)	2.50	3.17	2.99		4.88
	Nickel (Ni) (mg/kg)	78.4	85.5	66.1		57.8
	Phosphorus (P) (mg/kg)	664	736	498		1680
	Potassium (K) (mg/kg)	1460	1380	1230		1950
	Selenium (Se) (mg/kg)	0.51	0.56	0.36		0.71
	Silver (Ag) (mg/kg)	0.16	0.13	0.11		0.20
	Sodium (Na) (mg/kg)	555	522	297		222
	Strontium (Sr) (mg/kg)	26.7	24.1	20.4		18.1
	Thallium (Tl) (mg/kg)	0.079	0.081	0.064		0.130
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0		<2.0
	Titanium (Ti) (mg/kg)	258	241	261		363

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1669874-31	L1669874-32	L1669874-33	L1669874-38	
Description	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	
Sampled Date					
Sampled Time					
Client ID	AMARUQ DUP-2	AMARUQ DUP-3	AMARUQ DUP-4	AMARUQ-COMP-DUP	
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	85.6	91.3	90.4	91.2	
pH (1:2 soil:water) (pH)	5.83	6.37	6.27		
Particle Size % Gravel (>2mm) (%)	<0.10	<0.10	<0.10		
% Sand (2.0mm - 0.063mm) (%)	5.12	17.2	0.50		
% Silt (0.063mm - 4um) (%)	82.8	78.7	86.1		
% Clay (<4um) (%)	12.0	4.18	13.4		
Texture	Silt	Silt loam	Silt		
Organic / Inorganic Carbon Total Organic Carbon (%)	5.33	9.18	11.7		
Metals Aluminum (Al) (mg/kg)	14500	10300	17200		
Antimony (Sb) (mg/kg)	0.21	0.38	0.33		
Arsenic (As) (mg/kg)	96.7	47.2	138		
Barium (Ba) (mg/kg)	112	92.2	138		
Beryllium (Be) (mg/kg)	1.26	0.68	1.34		
Bismuth (Bi) (mg/kg)	0.49	0.25	0.45		
Boron (B) (mg/kg)	7.0	13.0	19.8		
Cadmium (Cd) (mg/kg)	0.383	0.273	0.258		
Calcium (Ca) (mg/kg)	2270	3620	3370		
Chromium (Cr) (mg/kg)	62.5	113	158		
Cobalt (Co) (mg/kg)	15.8	8.06	11.4		
Copper (Cu) (mg/kg)	36.5	39.7	63.1		
Iron (Fe) (mg/kg)	64300	24500	43800		
Lead (Pb) (mg/kg)	13.3	9.41	16.2		
Lithium (Li) (mg/kg)	11.2	12.4	18.0		
Magnesium (Mg) (mg/kg)	5620	6610	8570		
Manganese (Mn) (mg/kg)	1850	304	389		
Mercury (Hg) (mg/kg)	0.0746	0.0304	0.0874		
Molybdenum (Mo) (mg/kg)	3.21	2.70	3.64		
Nickel (Ni) (mg/kg)	71.5	83.7	99.8		
Phosphorus (P) (mg/kg)	1560	656	876		
Potassium (K) (mg/kg)	2100	1440	2780		
Selenium (Se) (mg/kg)	0.67	0.57	0.66		
Silver (Ag) (mg/kg)	0.24	0.20	0.42		
Sodium (Na) (mg/kg)	284	503	342		
Strontium (Sr) (mg/kg)	22.1	27.1	23.7		
Thallium (Tl) (mg/kg)	0.190	0.090	0.215		
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0		
Titanium (Ti) (mg/kg)	403	247	457		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1669874-1 Soil/Sed/Waste 22-AUG-15 WTN-EX-1	L1669874-2 Soil/Sed/Waste 22-AUG-15 WTN-EX-2	L1669874-3 Soil/Sed/Waste 22-AUG-15 WTN-EX-3	L1669874-4 Soil/Sed/Waste 22-AUG-15 WTN-EX-4	L1669874-5 Soil/Sed/Waste 22-AUG-15 WTN-EX-5
SOIL						
Metals	Uranium (U) (mg/kg)	8.05	12.3	7.72	8.27	10.2
	Vanadium (V) (mg/kg)	30.5	38.4	29.3	32.3	34.3
	Zinc (Zn) (mg/kg)	85.4	112	86.1	90.1	107
	Zirconium (Zr) (mg/kg)	1.3	1.7	1.6	1.4	1.6
Aggregate Organics	Mineral Oil and Grease (mg/kg)					
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b)fluoranthene (mg/kg)					
	Benzo(b+j+k)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					
	B(a)P Total Potency Equivalent (mg/kg)					
	IACR (CCME) (mg/kg)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1669874-6	L1669874-7	L1669874-8	L1669874-9	L1669874-10
Description	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste	Soil/Sed/Waste
Sampled Date	22-AUG-15	22-AUG-15	22-AUG-15	22-AUG-15	22-AUG-15
Sampled Time					
Client ID	WTN-1	WTN-2	WTN-3	WTN-4	WTN-5
Grouping / **Analyte**					
SOIL					
Metals Uranium (U) (mg/kg)	8.78	8.47	9.22	9.64	9.21
Vanadium (V) (mg/kg)	23.7	22.4	25.9	25.3	23.5
Zinc (Zn) (mg/kg)	88.1	99.3	79.1	96.2	92.8
Zirconium (Zr) (mg/kg)	<1.0	1.3	1.2	1.3	1.2
Aggregate Organics Mineral Oil and Grease (mg/kg)					
Hydrocarbons EPH10-19 (mg/kg)					
EPH19-32 (mg/kg)					
LEPH (mg/kg)					
HEPH (mg/kg)					
Polycyclic Aromatic Hydrocarbons Acenaphthene (mg/kg)					
Acenaphthylene (mg/kg)					
Anthracene (mg/kg)					
Benz(a)anthracene (mg/kg)					
Benzo(a)pyrene (mg/kg)					
Benzo(b)fluoranthene (mg/kg)					
Benzo(b+j+k)fluoranthene (mg/kg)					
Benzo(g,h,i)perylene (mg/kg)					
Benzo(k)fluoranthene (mg/kg)					
Chrysene (mg/kg)					
Dibenz(a,h)anthracene (mg/kg)					
Fluoranthene (mg/kg)					
Fluorene (mg/kg)					
Indeno(1,2,3-c,d)pyrene (mg/kg)					
2-Methylnaphthalene (mg/kg)					
Naphthalene (mg/kg)					
Phenanthrene (mg/kg)					
Pyrene (mg/kg)					
Surrogate: Acenaphthene d10 (%)					
Surrogate: Chrysene d12 (%)					
Surrogate: Naphthalene d8 (%)					
Surrogate: Phenanthrene d10 (%)					
B(a)P Total Potency Equivalent (mg/kg)					
IACR (CCME) (mg/kg)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1669874-11 Soil/Sed/Waste 22-AUG-15 WTN-COMP	L1669874-12 Soil/Sed/Waste 21-AUG-15 WTS-1	L1669874-13 Soil/Sed/Waste 21-AUG-15 WTS-2	L1669874-14 Soil/Sed/Waste 21-AUG-15 WTS-3	L1669874-15 Soil/Sed/Waste 21-AUG-15 WTS-4
SOIL						
Metals	Uranium (U) (mg/kg)		9.53	12.3	11.2	11.1
	Vanadium (V) (mg/kg)		24.3	26.9	26.5	25.6
	Zinc (Zn) (mg/kg)		86.7	99.2	87.9	89.8
	Zirconium (Zr) (mg/kg)		1.2	1.4	1.9	1.3
Aggregate Organics	Mineral Oil and Grease (mg/kg)	<525 DLHM				
Hydrocarbons	EPH10-19 (mg/kg)	<820 DLHM				
	EPH19-32 (mg/kg)	<820 DLHM				
	LEPH (mg/kg)	<820				
	HEPH (mg/kg)	<820				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.010 DLHM				
	Acenaphthylene (mg/kg)	<0.010 DLHM				
	Anthracene (mg/kg)	<0.0080 DLHM				
	Benz(a)anthracene (mg/kg)	<0.020 DLHM				
	Benzo(a)pyrene (mg/kg)	<0.020 DLHM				
	Benzo(b)fluoranthene (mg/kg)	<0.020 DLHM				
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.028				
	Benzo(g,h,i)perylene (mg/kg)	<0.020 DLHM				
	Benzo(k)fluoranthene (mg/kg)	<0.020 DLHM				
	Chrysene (mg/kg)	<0.020 DLHM				
	Dibenz(a,h)anthracene (mg/kg)	<0.010 DLHM				
	Fluoranthene (mg/kg)	<0.020 DLHM				
	Fluorene (mg/kg)	<0.020 DLHM				
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.020 DLHM				
	2-Methylnaphthalene (mg/kg)	<0.020 DLHM				
	Naphthalene (mg/kg)	<0.020 DLHM				
	Phenanthrene (mg/kg)	<0.020 DLHM				
	Pyrene (mg/kg)	<0.020 DLHM				
	Surrogate: Acenaphthene d10 (%)	95.2				
	Surrogate: Chrysene d12 (%)	113.5				
	Surrogate: Naphthalene d8 (%)	90.2				
	Surrogate: Phenanthrene d10 (%)	108.6				
	B(a)P Total Potency Equivalent (mg/kg)	<0.020				
	IACR (CCME) (mg/kg)	<0.21				

* 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		L1669874-16 Soil/Sed/Waste 21-AUG-15 WTS-5	L1669874-17 Soil/Sed/Waste 21-AUG-15 WTS-COMP	L1669874-18 Soil/Sed/Waste 24-AUG-15 MAM-1	L1669874-19 Soil/Sed/Waste 24-AUG-15 MAM-2	L1669874-20 Soil/Sed/Waste 24-AUG-15 MAM-3
Grouping	**Analyte**					
SOIL						
Metals	Uranium (U) (mg/kg)	10.3		11.5	11.8	13.8
	Vanadium (V) (mg/kg)	25.6		39.5	39.6	43.3
	Zinc (Zn) (mg/kg)	84.4		110	109	129
	Zirconium (Zr) (mg/kg)	1.1		4.2	3.7	3.5
Aggregate Organics	Mineral Oil and Grease (mg/kg)		1690			
Hydrocarbons	EPH10-19 (mg/kg)		<680 DLHM			
	EPH19-32 (mg/kg)		<680 DLHM			
	LEPH (mg/kg)		<680			
	HEPH (mg/kg)		<680			
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)		<0.0050			
	Acenaphthylene (mg/kg)		<0.0050			
	Anthracene (mg/kg)		<0.0040			
	Benz(a)anthracene (mg/kg)		<0.010			
	Benzo(a)pyrene (mg/kg)		<0.010			
	Benzo(b)fluoranthene (mg/kg)		<0.010			
	Benzo(b+j+k)fluoranthene (mg/kg)		<0.015			
	Benzo(g,h,i)perylene (mg/kg)		<0.010			
	Benzo(k)fluoranthene (mg/kg)		<0.010			
	Chrysene (mg/kg)		<0.010			
	Dibenz(a,h)anthracene (mg/kg)		<0.0050			
	Fluoranthene (mg/kg)		<0.010			
	Fluorene (mg/kg)		<0.010			
	Indeno(1,2,3-c,d)pyrene (mg/kg)		<0.010			
	2-Methylnaphthalene (mg/kg)		<0.010			
	Naphthalene (mg/kg)		<0.010			
	Phenanthrene (mg/kg)		<0.010			
	Pyrene (mg/kg)		<0.010			
	Surrogate: Acenaphthene d10 (%)		97.0			
	Surrogate: Chrysene d12 (%)		121.5			
	Surrogate: Naphthalene d8 (%)		92.2			
	Surrogate: Phenanthrene d10 (%)		114.2			
	B(a)P Total Potency Equivalent (mg/kg)		<0.020			
	IACR (CCME) (mg/kg)		<0.15			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1669874-21 Soil/Sed/Waste 24-AUG-15 MAM-4	L1669874-22 Soil/Sed/Waste 24-AUG-15 MAM-5	L1669874-23 Soil/Sed/Waste 24-AUG-15 MAM-COMP	L1669874-24 Soil/Sed/Waste 23-AUG-15 NEM-1	L1669874-25 Soil/Sed/Waste 23-AUG-15 NEM-2
SOIL						
Metals	Uranium (U) (mg/kg)	10.6	11.1		4.08	2.46
	Vanadium (V) (mg/kg)	35.5	38.4		24.1	19.4
	Zinc (Zn) (mg/kg)	99.0	110		59.7	44.3
	Zirconium (Zr) (mg/kg)	4.2	4.4		<1.0	<1.0
Aggregate Organics	Mineral Oil and Grease (mg/kg)			1960		
Hydrocarbons	EPH10-19 (mg/kg)			DLHM <1100		
	EPH19-32 (mg/kg)			DLHM <1100		
	LEPH (mg/kg)			<1100		
	HEPH (mg/kg)			<1100		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)			DLHM <0.015		
	Acenaphthylene (mg/kg)			DLHM <0.015		
	Anthracene (mg/kg)			DLHM <0.012		
	Benz(a)anthracene (mg/kg)			DLHM <0.030		
	Benzo(a)pyrene (mg/kg)			DLHM <0.030		
	Benzo(b)fluoranthene (mg/kg)			DLHM <0.030		
	Benzo(b+j+k)fluoranthene (mg/kg)			<0.042		
	Benzo(g,h,i)perylene (mg/kg)			DLHM <0.030		
	Benzo(k)fluoranthene (mg/kg)			DLHM <0.030		
	Chrysene (mg/kg)			DLHM <0.030		
	Dibenz(a,h)anthracene (mg/kg)			DLHM <0.015		
	Fluoranthene (mg/kg)			DLHM <0.030		
	Fluorene (mg/kg)			DLHM <0.030		
	Indeno(1,2,3-c,d)pyrene (mg/kg)			DLHM <0.030		
	2-Methylnaphthalene (mg/kg)			DLHM <0.030		
	Naphthalene (mg/kg)			DLHM <0.030		
	Phenanthrene (mg/kg)			DLHM <0.030		
	Pyrene (mg/kg)			DLHM <0.030		
	Surrogate: Acenaphthene d10 (%)			87.7		
	Surrogate: Chrysene d12 (%)			115.7		
	Surrogate: Naphthalene d8 (%)			78.1		
	Surrogate: Phenanthrene d10 (%)			108.1		
	B(a)P Total Potency Equivalent (mg/kg)			<0.029		
	IACR (CCME) (mg/kg)			<0.32		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1669874-26 Soil/Sed/Waste 23-AUG-15 NEM-3	L1669874-27 Soil/Sed/Waste 23-AUG-15 NEM-4	L1669874-28 Soil/Sed/Waste 23-AUG-15 NEM-5	L1669874-29 Soil/Sed/Waste 23-AUG-15 NEM-COMP	L1669874-30 Soil/Sed/Waste AMARUQ DUP-1
SOIL						
Metals	Uranium (U) (mg/kg)	3.61	3.52	3.00		8.06
	Vanadium (V) (mg/kg)	23.1	21.9	21.2		24.7
	Zinc (Zn) (mg/kg)	54.2	54.7	44.6		75.2
	Zirconium (Zr) (mg/kg)	<1.0	<1.0	<1.0		<1.0
Aggregate Organics	Mineral Oil and Grease (mg/kg)				2990	
Hydrocarbons	EPH10-19 (mg/kg)				<880 DLHM	
	EPH19-32 (mg/kg)				<880 DLHM	
	LEPH (mg/kg)				<880	
	HEPH (mg/kg)				<880	
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)				<0.010 DLHM	
	Acenaphthylene (mg/kg)				<0.010 DLHM	
	Anthracene (mg/kg)				<0.0080 DLHM	
	Benz(a)anthracene (mg/kg)				<0.020 DLHM	
	Benzo(a)pyrene (mg/kg)				<0.020 DLHM	
	Benzo(b)fluoranthene (mg/kg)				<0.020 DLHM	
	Benzo(b+j+k)fluoranthene (mg/kg)				<0.028	
	Benzo(g,h,i)perylene (mg/kg)				<0.020 DLHM	
	Benzo(k)fluoranthene (mg/kg)				<0.020 DLHM	
	Chrysene (mg/kg)				<0.020 DLHM	
	Dibenz(a,h)anthracene (mg/kg)				<0.010 DLHM	
	Fluoranthene (mg/kg)				<0.020 DLHM	
	Fluorene (mg/kg)				<0.020 DLHM	
	Indeno(1,2,3-c,d)pyrene (mg/kg)				<0.020 DLHM	
	2-Methylnaphthalene (mg/kg)				<0.020 DLHM	
	Naphthalene (mg/kg)				<0.020 DLHM	
	Phenanthrene (mg/kg)				<0.020 DLHM	
	Pyrene (mg/kg)				<0.020 DLHM	
	Surrogate: Acenaphthene d10 (%)				94.4	
	Surrogate: Chrysene d12 (%)				122.1	
	Surrogate: Naphthalene d8 (%)				85.3	
	Surrogate: Phenanthrene d10 (%)				115.2	
	B(a)P Total Potency Equivalent (mg/kg)				<0.020	
	IACR (CCME) (mg/kg)				<0.21	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1669874-31 Soil/Sed/Waste AMARUQ DUP-2	L1669874-32 Soil/Sed/Waste AMARUQ DUP-3	L1669874-33 Soil/Sed/Waste AMARUQ DUP-4	L1669874-38 Soil/Sed/Waste AMARUQ-COMP-DUP	
SOIL						
Metals	Uranium (U) (mg/kg)	9.31	4.18	11.9		
	Vanadium (V) (mg/kg)	23.6	23.4	38.6		
	Zinc (Zn) (mg/kg)	82.7	57.7	106		
	Zirconium (Zr) (mg/kg)	<1.0	1.6	4.0		
Aggregate Organics	Mineral Oil and Grease (mg/kg)				1010	
Hydrocarbons	EPH10-19 (mg/kg)				DLHM <1000	
	EPH19-32 (mg/kg)				DLHM <1000	
	LEPH (mg/kg)				<1000	
	HEPH (mg/kg)				<1000	
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)				DLHM <0.015	
	Acenaphthylene (mg/kg)				DLHM <0.015	
	Anthracene (mg/kg)				DLHM <0.012	
	Benz(a)anthracene (mg/kg)				DLHM <0.030	
	Benzo(a)pyrene (mg/kg)				DLHM <0.030	
	Benzo(b)fluoranthene (mg/kg)				DLHM <0.030	
	Benzo(b+j+k)fluoranthene (mg/kg)				<0.042	
	Benzo(g,h,i)perylene (mg/kg)				DLHM <0.030	
	Benzo(k)fluoranthene (mg/kg)				DLHM <0.030	
	Chrysene (mg/kg)				DLHM <0.030	
	Dibenz(a,h)anthracene (mg/kg)				DLHM <0.015	
	Fluoranthene (mg/kg)				DLHM <0.030	
	Fluorene (mg/kg)				DLHM <0.030	
	Indeno(1,2,3-c,d)pyrene (mg/kg)				DLHM <0.030	
	2-Methylnaphthalene (mg/kg)				DLHM <0.030	
	Naphthalene (mg/kg)				DLHM <0.030	
	Phenanthrene (mg/kg)				DLHM <0.030	
	Pyrene (mg/kg)				DLHM <0.030	
	Surrogate: Acenaphthene d10 (%)				90.8	
	Surrogate: Chrysene d12 (%)				115.6	
	Surrogate: Naphthalene d8 (%)				85.0	
	Surrogate: Phenanthrene d10 (%)				108.4	
	B(a)P Total Potency Equivalent (mg/kg)				<0.029	
	IACR (CCME) (mg/kg)				<0.32	

* 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	EPH10-19	DLHM	L1669874-11, -17, -23, -29, -38
Duplicate	EPH19-32	DLHM	L1669874-11, -17, -23, -29, -38
Laboratory Control Sample	Silver (Ag)-Total	LCS-L	L1669874-34, -35, -36, -37

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLHM	Detection Limit Adjusted: Sample has High Moisture Content
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
RRR	Refer to Report Remarks for issues regarding this analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
AIR VOLUME-VA	Misc.	Air volume (L)	HYGIENE METHOD
C-TOT-ORG-LECO-SK	Soil	Organic Carbon by combustion method	SSSA (1996) p. 973

Total Organic Carbon (C-TOT-ORG-LECO-SK, C-TOT-ORG-SK)

Total C and inorganic C are determined on separate samples. The total C is determined by combustion and thermal conductivity detection, while inorganic C is determined by weight lass after addition of hydrochloric acid. Organic C is calculated by the difference between these two determinations.

Reference for Total C:
Nelson, D.W. and Sommers, L.E. 1996. Total Carbon, organic carbon and organic matter. P. 961-1010 In: J.M. Bartels et al. (ed.) Methods of soil analysis: Part 3 Chemical methods. (3rd ed.) ASA and SSSA, Madison, WI. Book series no. 5

Reference for Inorganic C:
Loeppert, R.H. and Suarez, D.L. 1996. Gravimetric Method for Loss of Carbon Dioxide. P. 455-456 In: J.M. Bartels et al. (ed.) Methods of soil analysis: Part 3 Chemical methods. (3rd ed.) ASA and SSSA, Madison, WI. Book series no. 5

EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAFS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAFS.

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in Solids. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated
by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-c,d)pyrene, and Pyrene
are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

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

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CRC ICPMS.

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. This method does not dissolve all silicate materials and may result in a partial extraction. depending on the sample matrix, for some metals, including, but not limited to Al, Ba, Be, Cr, Sr, Ti, Tl, and V.

MET-AR-MG-ICP-VA	Filter	Metals in Filter by ICPOES	NIOSH 7303/EPA 6010B

This analysis is carried out using procedures adapted from Method 7303 in the NIOSH Manual of Analytcial Methods (NMAM). The procedure involves a hot block digestion of the filter media, using a combination of nitric acid and hydrochloric acid. Instrumental analysis of the filter extract is by inductively coupled plasma - optical emission spectrophotometry (EPA 6010B).

MOISTURE-VA	Soil	Moisture content	ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

OGG-TUMB-SG-VA	Soil	CWS MOG with Silica Gel	CCME PETROLEUM HYDROCARBONS-

Reference Information

GRAVIMETRIC

This analysis is carried out in accordance with the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." A subsample of the sediment/soil is extracted with 1:1 hexane:acetone using a rotary extraction apparatus. The extract undergoes a silica-gel clean-up to remove polar compounds, and is analyzed gravimetrically. Mineral Oil and Grease is equivalent to fraction F4G of the Canada-wide Standard for Petroleum Hydrocarbons.

Accuracy target values for Reference Materials used in this method are derived from averages of long-term method performance, as certified values do not exist for the reported parameters.

PAH-TMB-H/A-MS-VA Soil PAH - Rotary Extraction (Hexane/Acetone) EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3570 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-1:2-VA Soil pH in Soil (1:2 Soil:Water Extraction) BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

PSA-PIPET+GRAVEL-SK Soil Particle size - Sieve and Pipette SSIR-51 METHOD 3.2.1

Particle size distribution is determined by a combination of techniques. Dry sieving is performed for coarse particles, wet sieving for sand particles and the pipette sedimentation method for clay particles.

Reference:

Burt, R. (2009). Soil Survey Field and Laboratory Methods Manual. Soil Survey Investigations Report No. 5. Method 3.2.1.2.2. United States Department of Agriculture Natural Resources Conservation Service.

** 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:

2 3 OL-1767

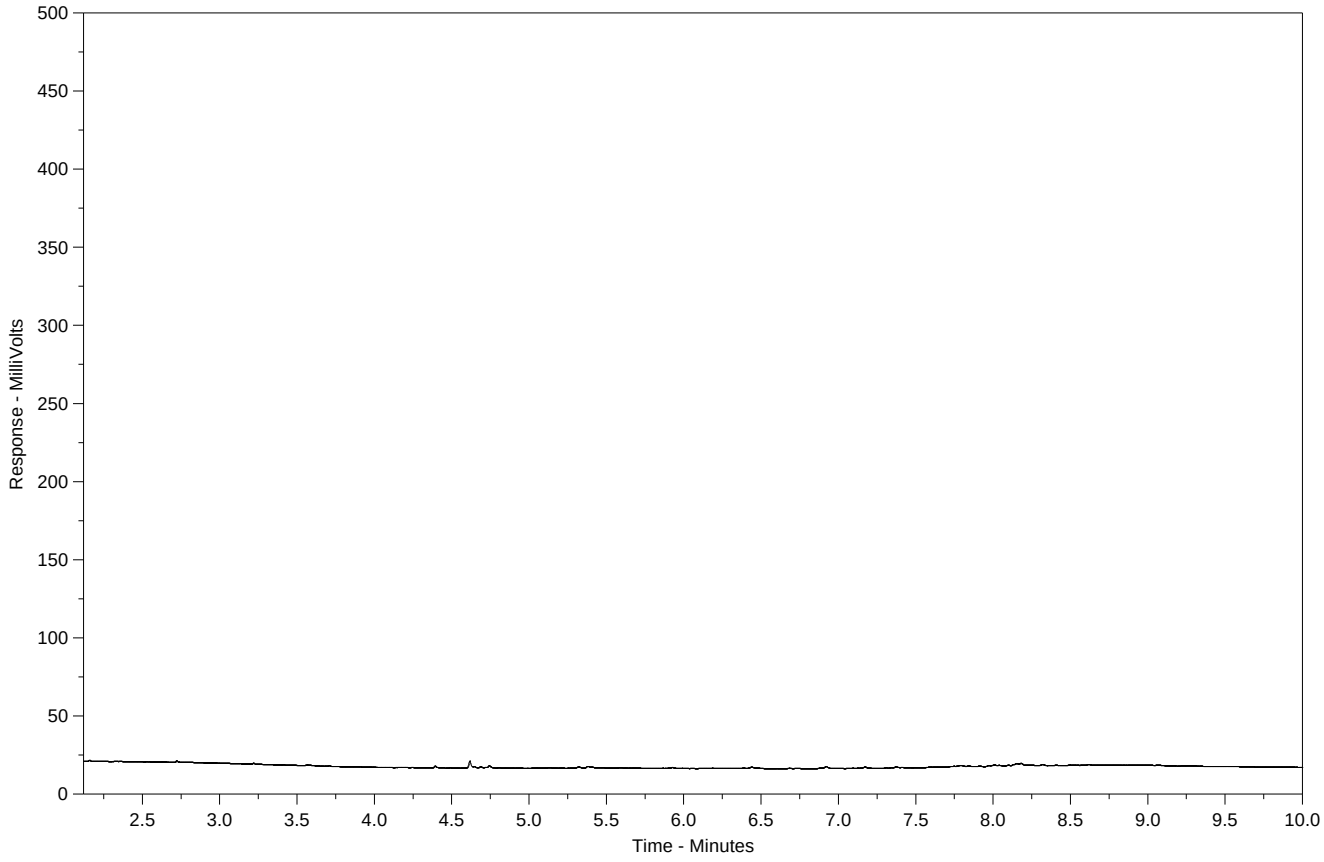
GLOSSARY OF REPORT TERMS

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.

Hydrocarbon Distribution Report

ALS Sample ID: L1669874-11
Client Sample ID: WTN-COMP



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

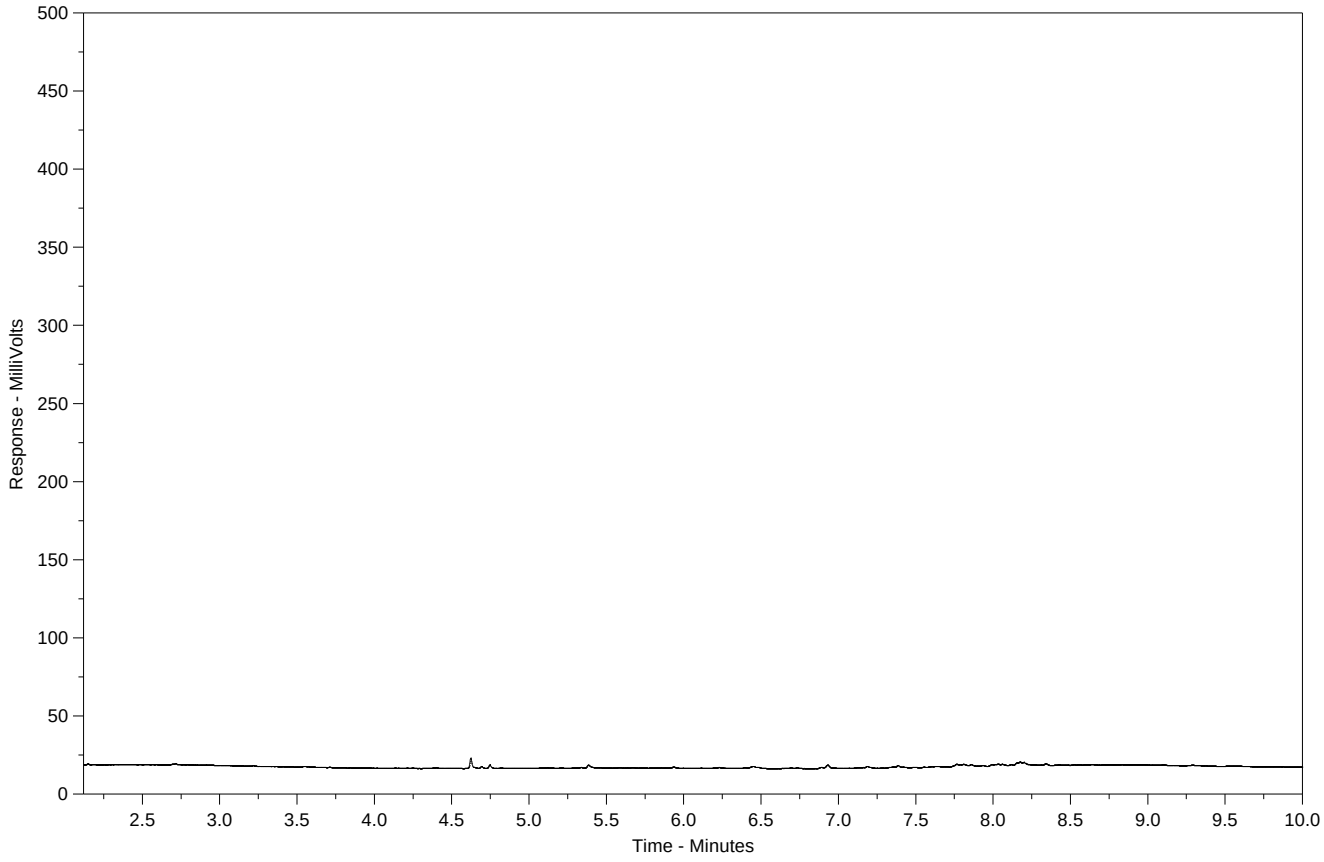
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1669874-17
Client Sample ID: WTS-COMP



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

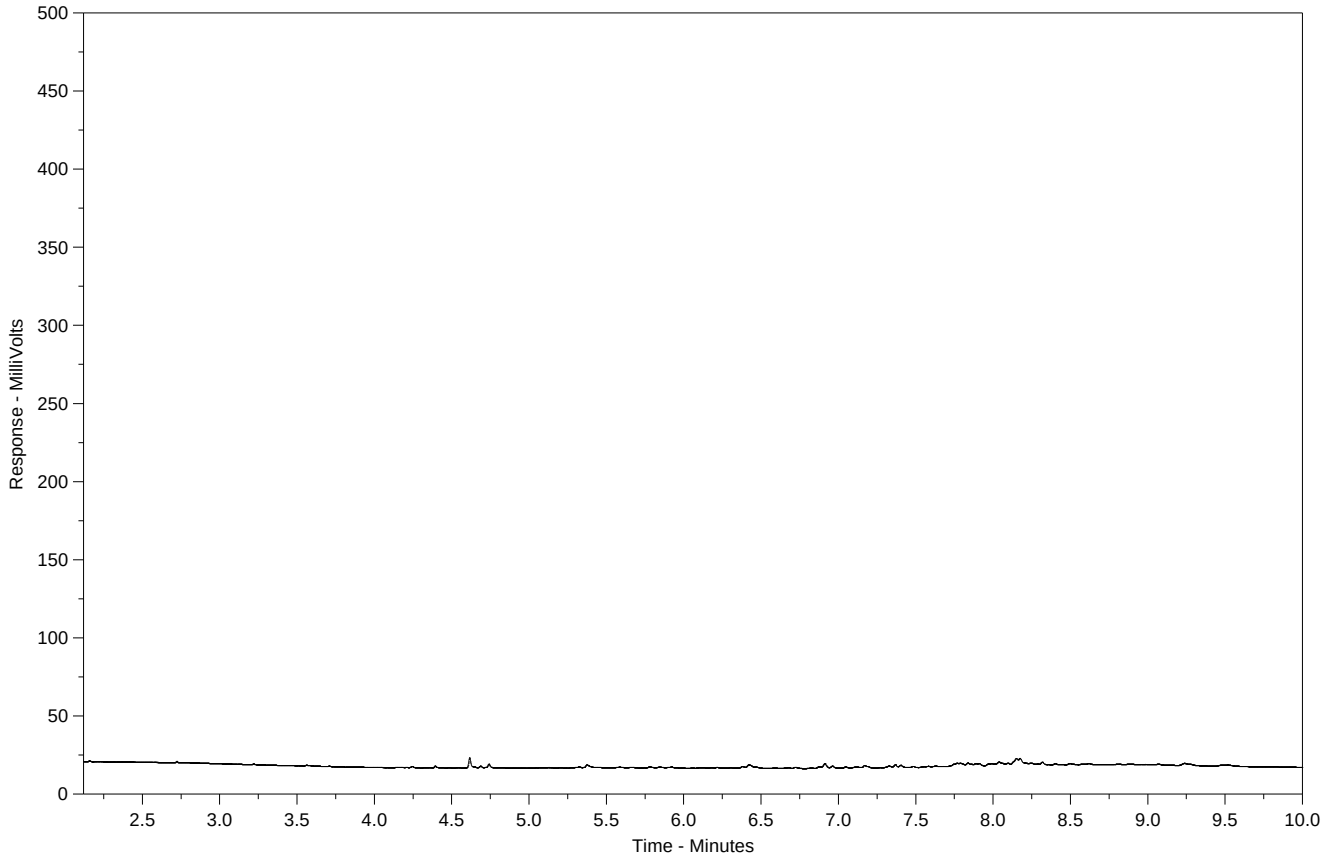
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1669874-23
Client Sample ID: MAM-COMP



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

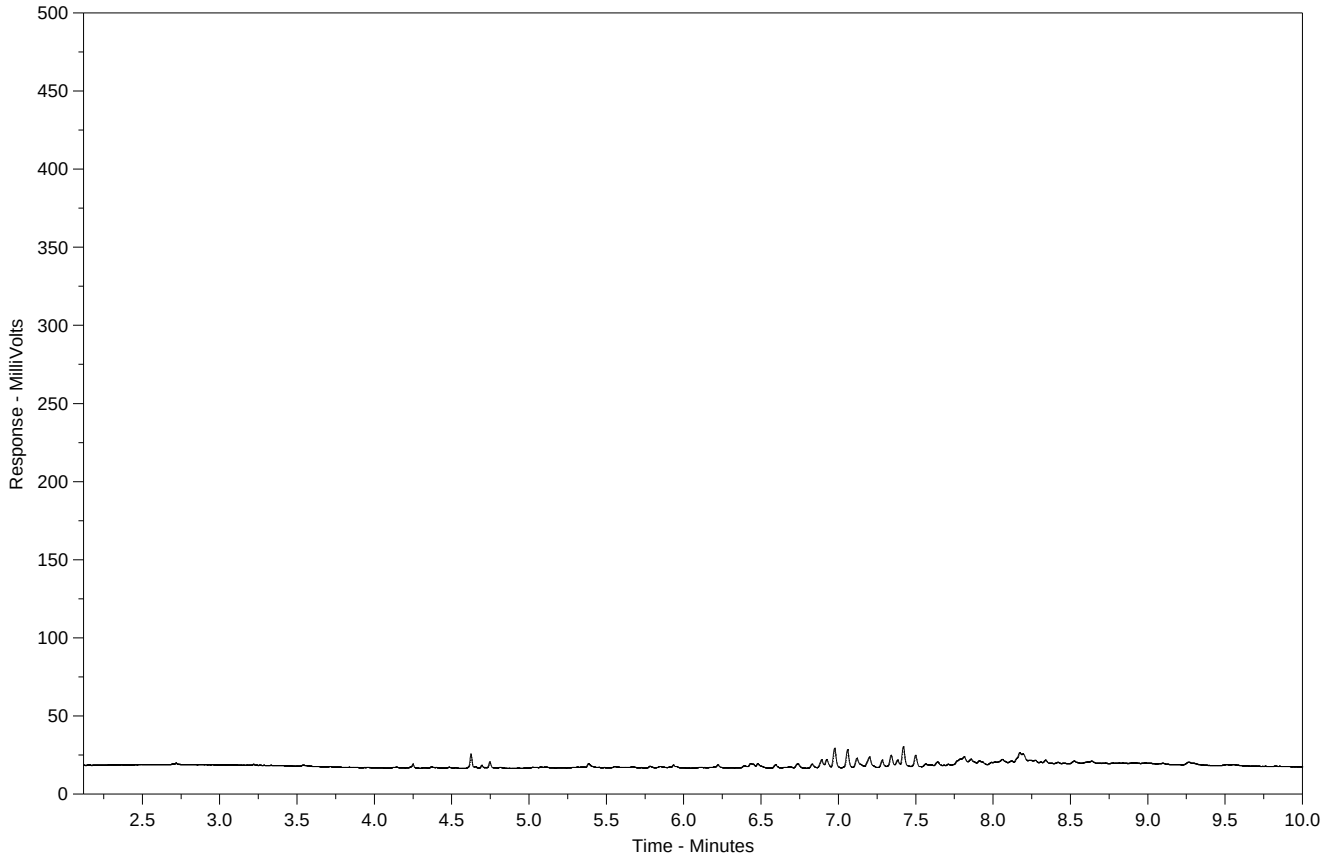
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1669874-29
Client Sample ID: NEM-COMP



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

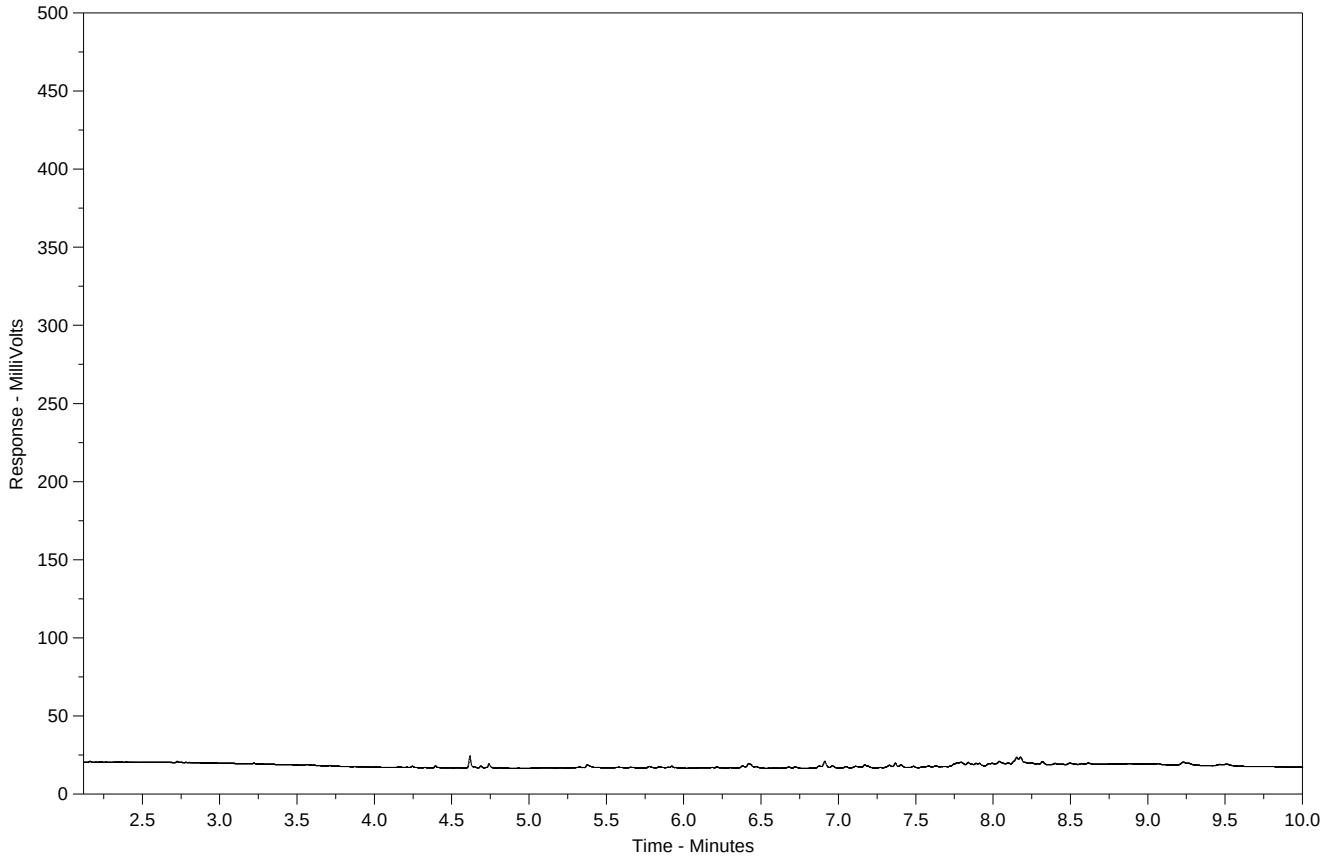
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1669874-38
Client Sample ID: AMARUQ-COMP-DUP



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free : 1 800 668 9878
www.alsglobal.com

COC #: OL-1767

Report To				Reporting		Service Requested
Company:	Azimuth Consulting Group			Distribution: ☐Fax ☐Mail ☑Email		◉Regular (Standard Turnaround Times - Business Days) - R
Contact:	Maggie McConnell			☐Ciriteria on Report (select from Guidelines below)		○Priority (3 Days) - surcharge will apply - P
Address:	#218 - 2902 West Broadway Vancouver, BC Canada, V6K 2G8			Report Type: ☑Excel ☐Digital		○Priority (2 Days) - surcharge will apply - P2
				Report Format:		○Emergency (1-2 day) – surcharge will apply - E
				Report Email(s): gmann@azimuthgroup.ca efranz@azimuthgroup.ca mmcconnell@azimuthgroup.ca		○Same Day or Weekend Emergency - surcharge will apply - E2
						○Specify date required - X
Phone:	604-730-1220	Fax:	604-739-8511			
Invoice To	☑Email ☐Mail			EDD Format:		
Company:	Azimuth Consulting Group			EDD Email(s):		
Contact:	Maggie McConnell					
Address:	#218 - 2902 West Broadway Vancouver, BC Canada, V6K 2G8			Project Info		
				Job #: Amaruq Sediment		
				PO/AFE:		
Email:	mmcconnell@azimuthgroup.ca			LSD:		
Phone:	604-730-1220			Quote #: Q38011		
Lab Work Order # (lab use only)		L1669874		ALS Contact: Brent Mack	Sampler:	

Analysis Requests

Sample #	Sample Identification (This will appear on the report)	Coordinates Longitude	Coordinates Latitude	Date	Time	Sample Type	Number of Containers	Total metals, pH, Moisture	TOC, Grain size	PAHs, LEPHs, HEPHs, MOG	Total Metals	Please indicate below Filtered (F), Preserved (P), or Filtered and Preserved (F/P)
11	WTN-Ex-1			22 Aug 15		Soil/Sed/Waste	2	R	R			
12	WTN-Ex-2			"		Soil/Sed/Waste	2	R	R			
13	WTN-Ex-3			"		Soil/Sed/Waste	2	R	R			
14	WTN-Ex-4			"		Soil/Sed/Waste	2	R	R			
15	WTN-Ex-5			"		Soil/Sed/Waste	2	R	R			
16	WTN-1			"		Soil/Sed/Waste	2	R	R			
17	WTN-2			"		Soil/Sed/Waste	2	R	R			
18	WTN-3			"		Soil/Sed/Waste	2	R	R			

(See page 2 for further samples)

L1669874-COFC

Special Instructions/Comments	The questions below must be answered for water samples (check Yes or No)	Guidelines
	Are any sample taken from a regulated DW system? ☐Yes ☐No If yes, please use an authorized drinking water COC Is the water sampled intended to be potable for human consumption? ☐Yes ☐No	

SAMPLE CONDITION (lab use only)
☐Frozen ☐Cold ☐Ambient ☐Cooling Initiated

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: ☐Yes If Yes add SIF
Eric Franz	31-Aug-15	10:26am	Lady	Sept. 9	9AM	17.9 °C 16.1 16.8 17.8				

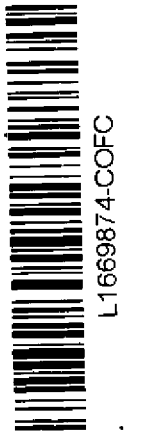
ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free : 1 800 668 9878
www.alsglobal.com

COC #: OL-1767

Sample #	Sample Identification (This will appear on the report)	Coordinates		Date	Time	Sample Type	Analysis Requests																		
		Longitude	Latitude				Number of Containers	Total metals, pH, Moisture	TOC, Grain size	PAHs, LEPHs, HEPHs, MOG	Total Metals														
							Please indicate below Filtered, Preserved or both(F, P, F/P)																		
9	WTN-4			22-Aug-15		Soil/Sed/Waste	2	R	R																
10	WTN-5			"		Soil/Sed/Waste	2	R	R																
11	WTN-COMP			"		Soil/Sed/Waste	1			R															
12	WTS-1			21-Aug-15		Soil/Sed/Waste	2	R	R																
13	WTS-2			"		Soil/Sed/Waste	2	R	R																
14	WTS-3			"		Soil/Sed/Waste	2	R	R																
15	WTS-4			"		Soil/Sed/Waste	2	R	R																
16	WTS-5			"		Soil/Sed/Waste	2	R	R																
17	WTS-COMP			"		Soil/Sed/Waste	1			R															
18	MAM-1			21-Aug-15		Soil/Sed/Waste	2	R	R																
19	MAM-2			"		Soil/Sed/Waste	2	R	R																
20	MAM-3			"		Soil/Sed/Waste	2	R	R																
21	MAM-4			"		Soil/Sed/Waste	2	R	R																
22	MAM-5			"		Soil/Sed/Waste	2	R	R																
23	MAM-COMP			"		Soil/Sed/Waste	1			R															
24	NEM-1			23-Aug-15		Soil/Sed/Waste	2	R	R																
25	NEM-2			"		Soil/Sed/Waste	2	R	R																
26	NEM-3			"		Soil/Sed/Waste	2	R	R																
27	NEM-4			"		Soil/Sed/Waste	2	R	R																
28	NEM-5			"		Soil/Sed/Waste	2	R	R																
29	NEM-COMP			"		Soil/Sed/Waste	1			R															
30	AMARUQ DUP-1			N/A		Soil/Sed/Waste	2	R	R																
31	AMARUQ DUP-2			N/A		Soil/Sed/Waste	2	R	R																
32	AMARUQ DUP-3			N/A		Soil/Sed/Waste	2	R	R																
33	AMARUQ DUP-4			N/A		Soil/Sed/Waste	2	R	R																
34	AMARUQ SWIPE-1			22-Aug-15		Filter	1				R														
35	AMARUQ SWIPE-2			21-Aug-15		Filter	1				R														

(See page 3 for further samples)



ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free : 1 800 668 9878
www.alsglobal.com

COC #: OL-1787

Sample #	Sample Identification (This will appear on the report)	Coordinates		Date	Time	Sample Type	Analysis Requests					
		Longitude	Latitude				Number of Containers	Total metals, pH, Moisture	TOC, Grain size	PAHs, LEPHs, HEPHs, MOG	Total Metals	
							Please indicate below Filtered, Preserved or both(F, P, F/P)					
36	AMARUQ SWPE-3			24-Aug-15		Filter	1				R	
37	AMARUQ SWPE-4			24-Aug-15		Filter	1				R	
38	AMARUQ-COMP-DUP			N/A		Soil/Sed/Waste	1			R		

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 28-SEP-15
Report Date: 05-OCT-15 12:21 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1679754

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACE WATER
C of C Numbers: 14-490824
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1679754-1	L1679754-2	L1679754-3	L1679754-4	L1679754-5
	Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	17-SEP-15	17-SEP-15	19-SEP-15	19-SEP-15	19-SEP-15
	Sampled Time	14:47	15:45	12:20	14:55	16:10
	Client ID	A34-A16	A16-A14	C58 OUTLET	A1-DS1	A17-A16
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	18.6	34.1	28.3	21.2	17.1
	pH (pH)	6.74	6.70	7.04	6.85	6.84
	Total Suspended Solids (mg/L)	10.5	3.2	<1.0	<1.0	<1.0
	Total Dissolved Solids (mg/L)	14.8	23.5	15.9	14.0	10.2
	Turbidity (NTU)	14.9	0.31	0.25	0.81	0.22
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	5.4	4.3	6.6	6.3	5.7
	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)	5.4	4.3	6.6	6.3	5.7
	Bromide (Br) (mg/L)	<0.050	0.063	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	0.64	5.66	0.53	0.95	0.73
	Fluoride (F) (mg/L)	0.032	0.026	0.024	0.028	0.032
	Nitrate (as N) (mg/L)	0.0138	<0.0050	<0.0050	0.0107	0.0068
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	0.0014	0.0012	0.0011	0.0014
	Phosphorus (P)-Total Dissolved (mg/L)	0.0026	<0.0020	<0.0020	0.0026	<0.0020
	Silicate (as SiO2) (mg/L)	1.38	0.65	<0.50	1.01	1.15
	Sulfate (SO4) (mg/L)	1.36	1.73	3.20	2.02	1.06

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1679754-6	L1679754-8			
	Description	Surface Water	Surface Water			
	Sampled Date	21-SEP-15	19-SEP-15			
	Sampled Time	12:38	14:56			
	Client ID	A13-A12	E5-E4			
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	27.6	20.8			
	pH (pH)	6.78	6.87			
	Total Suspended Solids (mg/L)	<1.0	1.1			
	Total Dissolved Solids (mg/L)	14.7	15.5			
	Turbidity (NTU)	0.36	0.77			
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	5.9	5.8			
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0			
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0			
	Alkalinity, Total (as CaCO3) (mg/L)	5.9	5.8			
	Bromide (Br) (mg/L)	<0.050	<0.050			
	Chloride (Cl) (mg/L)	2.08	0.96			
	Fluoride (F) (mg/L)	0.025	0.027			
	Nitrate (as N) (mg/L)	0.0139	0.0112			
	Nitrite (as N) (mg/L)	<0.0010	<0.0010			
	Orthophosphate-Dissolved (as P) (mg/L)	0.0012	<0.0010			
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020			
	Silicate (as SiO2) (mg/L)	0.99	0.89			
	Sulfate (SO4) (mg/L)	3.33	2.06			

* 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	Nitrite (as N)	DLM	L1679754-1, -2, -3, -4, -5, -6
Duplicate	Nitrite (as N)	DLM	L1679754-1, -2, -3, -4, -5, -6
Duplicate	Fluoride (F)	DLM	L1679754-8
Duplicate	Nitrite (as N)	DLM	L1679754-8
Duplicate	Nitrite (as N)	DLM	L1679754-8
Matrix Spike	Orthophosphate-Dissolved (as P)	MS-B	L1679754-8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
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.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)

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

CL-L-IC-N-VA	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)

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

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

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

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

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

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

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

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

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

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.

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

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

SILICATE-COL-VA	Water	Silicate by Colourimetric analysis	APHA 4500-SiO2 E.

This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.

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.

Reference Information

TDS-LOW-VA	Water	Low Level TDS (3.0mg/L) by Gravimetric	APHA 2540C

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-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540D

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.

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
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

14-490824

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.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1679754-COFC

COC Number: 14 - 490824

Page 1 of 1

Report To		Report Format /		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	AZIMUTH CONSULTING GROUP	Select Report Format:	☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	R ☒ Regular (Standard TAT if received by 3pm)
Contact:	ERIC FRANZ	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	218 - 2902 WEST BROADWAY, VANCOUVER, BC V6K 2G8	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
		Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
Phone:	~~(604) 730-1220~~ (604) 730-1220	Email 1 or Fax	EFranz@azimuthgroup.ca	Specify Date Required for E2,E or P:
		Email 2	ryan.vanenger@agnicocagle.com	Analysis Request

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☑ No	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	[redacted] AMARUQ SURFACE WATER	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)	L1679754	ALS Contact:	Sampler:

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identifi (This descriptic	tes rt)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conventionals ** (see note)	T35-Low, TDS-Low	Number of Containers
	A34 - A16		17-Sep-15	14:47	SURFACE WATER	X	X	2
	A16 - A14		17-Sep-15	15:45		X	X	
	C58 OUTLET		19-Sep-15	12:20		X	X	
	A1 - DS1		19-Sep-15	14:55		X	X	
	A17 - A16		19-Sep-15	16:10		X	X	
	A13 - A12		21-Sep-15	12:38		X	X	
	E5 - E4		21-Sep-15	13:00		X	X	

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	** CONVENTIONALS INCLUDE: ALK SPECIES, pH, EC, TURBIDITY, CONDUCTIVITY, ANIONS (F, NO_2, NO_3, Br, SO_4), LOW-LEVEL CHLORIDE TP-P; SILICATE; AND ORTHO-PO_4
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)					
Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C	
		14	14/15

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: Shafee	Date: Sept 28	Time: 1110

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS FM-032fle 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.

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

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 30-SEP-15
Report Date: 09-OCT-15 13:10 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1681194

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUA SURFACE WATER
C of C Numbers: 14-490825
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1681194-1 Surface Water 17-SEP-15 14:47 A34-A16	L1681194-2 Surface Water 17-SEP-15 15:45 A16-A14	L1681194-3 Surface Water 19-SEP-15 12:20 C58 OUTLET	L1681194-4 Surface Water 19-SEP-15 14:55 A1-DS1	L1681194-5 Surface Water 19-SEP-15 16:10 A17-A16
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	6.18	12.6	9.61	7.34	5.85
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	0.0064	<0.0050	<0.0050	<0.0050	<0.0050
	Total Kjeldahl Nitrogen (mg/L)	0.173	0.150	0.129	0.179	0.293
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cyanide, Free (mg/L)	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.76	13.2 RRV	1.83	1.94	1.84
	Total Organic Carbon (mg/L)	2.76	2.45 RRV	1.65	1.79	3.03
Total Metals	Aluminum (Al)-Total (mg/L)	0.491	0.0087	0.0039	0.0304	0.0053
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00035	0.00027	0.00026	0.00011	<0.00010
	Barium (Ba)-Total (mg/L)	0.00613	0.00508	0.00362	0.00377	0.00342
	Beryllium (Be)-Total (mg/L)	0.000038	<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)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	1.04	3.07	2.18	1.85	1.37
	Chromium (Cr)-Total (mg/L)	0.00199	0.00014	<0.00010	0.00014	<0.00010
	Cobalt (Co)-Total (mg/L)	0.00028	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	0.00164	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.793	0.020	<0.010	0.070	0.030
	Lead (Pb)-Total (mg/L)	0.000536	<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)	0.97	0.92	0.99	0.59	0.52
	Manganese (Mn)-Total (mg/L)	0.00943	0.00313	0.00258	0.00154	0.00039
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	0.000065	<0.000050	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Total (mg/L)	0.00201	0.00103	0.00480	<0.00050	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	0.49	0.40	0.56	0.45	0.34
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	1.41	0.266	0.211	0.486	0.522
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	0.605	0.574	0.489	0.607	0.644
	Strontium (Sr)-Total (mg/L)	0.00626	0.0223	0.00932	0.00811	0.00695
	Sulfur (S)-Total (mg/L)	<0.50	0.61	1.12	0.67	<0.50
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1681194-6	L1681194-7			
	Description	Surface Water	Surface Water			
	Sampled Date	21-SEP-15	21-SEP-15			
	Sampled Time	12:38	13:00			
	Client ID	A13-A12	E5-E4			
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	10.0	7.37			
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050			
	Total Kjeldahl Nitrogen (mg/L)	0.126	0.115			
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010			
	Cyanide, Free (mg/L)	<0.0010	<0.0010			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	3.45 RRV	2.23			
	Total Organic Carbon (mg/L)	1.57 RRV	1.87			
Total Metals	Aluminum (Al)-Total (mg/L)	0.0086	0.0238			
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010			
	Arsenic (As)-Total (mg/L)	0.00030	0.00011			
	Barium (Ba)-Total (mg/L)	0.00487	0.00364			
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020			
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050			
	Boron (B)-Total (mg/L)	<0.010	<0.010			
	Cadmium (Cd)-Total (mg/L)	0.0000107	<0.0000050			
	Calcium (Ca)-Total (mg/L)	2.53	1.86			
	Chromium (Cr)-Total (mg/L)	0.00015	0.00011			
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010			
	Copper (Cu)-Total (mg/L)	0.00063	<0.00050			
	Iron (Fe)-Total (mg/L)	0.022	0.062			
	Lead (Pb)-Total (mg/L)	0.000263	0.000059			
	Lithium (Li)-Total (mg/L)	<0.0010	<0.0010			
	Magnesium (Mg)-Total (mg/L)	0.86	0.61			
	Manganese (Mn)-Total (mg/L)	0.00081	0.00125			
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050			
	Nickel (Ni)-Total (mg/L)	0.00072	<0.00050			
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050			
	Potassium (K)-Total (mg/L)	0.57	0.47			
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050			
	Silicon (Si)-Total (mg/L)	0.434	0.473			
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010			
	Sodium (Na)-Total (mg/L)	0.583	0.662			
	Strontium (Sr)-Total (mg/L)	0.0112	0.00807			
	Sulfur (S)-Total (mg/L)	1.15	0.68			
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1681194-1 Surface Water 17-SEP-15 14:47 A34-A16	L1681194-2 Surface Water 17-SEP-15 15:45 A16-A14	L1681194-3 Surface Water 19-SEP-15 12:20 C58 OUTLET	L1681194-4 Surface Water 19-SEP-15 14:55 A1-DS1	L1681194-5 Surface Water 19-SEP-15 16:10 A17-A16
WATER						
Total Metals	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	0.0156	<0.00030	<0.00030	0.00081	<0.00030
	Uranium (U)-Total (mg/L)	0.000318	0.000027	<0.000010	0.000033	0.000017
	Vanadium (V)-Total (mg/L)	0.00081	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Total (mg/L)	0.0033	<0.0030	<0.0030	<0.0030	<0.0030
	Zirconium (Zr)-Total (mg/L)	0.00039	<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)	0.0452	0.0039	0.0021	0.0072	0.0023
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00019	0.00023	0.00026	0.00010	<0.00010
	Barium (Ba)-Dissolved (mg/L)	0.00339	0.00728 DTC	0.00387	0.00577 DTC	0.00418 DTC
	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	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	1.08	3.40	2.22	1.93	1.46
	Chromium (Cr)-Dissolved (mg/L)	0.00040	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00090	0.00043	0.00025	0.00056	0.00034
	Iron (Fe)-Dissolved (mg/L)	0.085	<0.010	<0.010	0.021	0.012
	Lead (Pb)-Dissolved (mg/L)	0.000142	<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)	0.84	1.00	0.99	0.62	0.54
	Manganese (Mn)-Dissolved (mg/L)	0.00279	0.00180	0.00059	0.00083	0.00040
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000051	<0.000050	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Dissolved (mg/L)	0.00114	0.00104	<0.00050	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	0.38	0.45	0.59	0.45	0.38
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Dissolved (mg/L)	0.675	0.285	0.208	0.458	0.543
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	0.687	0.625	0.491	0.735	0.801 DTC
	Strontium (Sr)-Dissolved (mg/L)	0.00591	0.0225	0.00909	0.00804	0.00690
	Sulfur (S)-Dissolved (mg/L)	<0.50	0.60	1.25	0.71	<0.50
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1681194-6	L1681194-7			
	Description	Surface Water	Surface Water			
	Sampled Date	21-SEP-15	21-SEP-15			
	Sampled Time	12:38	13:00			
	Client ID	A13-A12	E5-E4			
Grouping	**Analyte**					
WATER						
Total Metals	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010			
	Titanium (Ti)-Total (mg/L)	0.00030	0.00068			
	Uranium (U)-Total (mg/L)	0.000017	0.000029			
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050			
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030			
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030			
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD			
	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	0.0032	0.0076			
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010			
	Arsenic (As)-Dissolved (mg/L)	0.00024	<0.00010			
	Barium (Ba)-Dissolved (mg/L)	0.00548	0.00436			
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020			
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050			
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010			
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	<0.0000050			
	Calcium (Ca)-Dissolved (mg/L)	2.54	1.93			
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010			
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010			
	Copper (Cu)-Dissolved (mg/L)	0.00055	0.00048			
	Iron (Fe)-Dissolved (mg/L)	<0.010	0.021			
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050			
	Lithium (Li)-Dissolved (mg/L)	<0.0010	<0.0010			
	Magnesium (Mg)-Dissolved (mg/L)	0.89	0.62			
	Manganese (Mn)-Dissolved (mg/L)	0.00043	0.00088			
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050			
	Nickel (Ni)-Dissolved (mg/L)	0.00065	<0.00050			
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050			
	Potassium (K)-Dissolved (mg/L)	0.58	0.48			
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050			
	Silicon (Si)-Dissolved (mg/L)	0.439	0.457			
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	0.623	0.747			
	Strontium (Sr)-Dissolved (mg/L)	0.0112	0.00805			
	Sulfur (S)-Dissolved (mg/L)	1.11	0.69			
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1681194-1	L1681194-2	L1681194-3	L1681194-4	L1681194-5
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	17-SEP-15	17-SEP-15	19-SEP-15	19-SEP-15	19-SEP-15
Sampled Time	14:47	15:45	12:20	14:55	16:10
Client ID	A34-A16	A16-A14	C58 OUTLET	A1-DS1	A17-A16
Grouping / **Analyte**					
WATER					
Dissolved Metals Tin (Sn)-Dissolved (mg/L)	<0.00010	0.00011	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved (mg/L)	0.00109	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved (mg/L)	0.000143	0.000024	<0.000010	0.000024	0.000014
Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)	0.0015	<0.0010	<0.0010	0.0012	<0.0010
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	L1681194-6	L1681194-7			
	Description	Surface Water	Surface Water			
	Sampled Date	21-SEP-15	21-SEP-15			
	Sampled Time	12:38	13:00			
	Client ID	A13-A12	E5-E4			
Grouping	**Analyte**					
WATER						
Dissolved Metals	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010			
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030			
	Uranium (U)-Dissolved (mg/L)	0.000014	0.000023			
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050			
	Zinc (Zn)-Dissolved (mg/L)	0.0012	<0.0010			
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030			

* 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	Sodium (Na)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Barium (Ba)-Total	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Sodium (Na)-Total	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Total	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1681194-1, -2, -3, -4, -5, -6, -7
Matrix Spike	Total Organic Carbon	MS-B	L1681194-1, -3, -4, -5, -7
Matrix Spike	Total Organic Carbon	MS-B	L1681194-2, -6
Matrix Spike	Dissolved Organic Carbon	MS-B	L1681194-2, -6

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
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**
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.

CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CN-FREE-L-CFA-VA	Water	Low Level Free Cyanide in water by CFA	ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

CN-T-L-CFA-VA	Water	Low Level 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.

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.

Reference Information

Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

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

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

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

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

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

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

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

MET-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-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.

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.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

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

Reference Information

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

Chain of Custody Numbers:

14-490825

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.

ALS Environmental

Canadian Locations (Toll Free 1-800-668-9878)

EMERGENCY SPILL RESPONSE: +1 855 638 LABS (5227)

…ouver, BC
… Lougheed Hwy
…naby, BC, — Ph: 604-253-4188
…A 1W9 — Fax: 604-253-6700

…amloops, BC
…445 McGill Rd, Unit 2B
Kamloops, BC — Ph: 250-372-3538
V2C 6K7 — Ph: 250-372-3670
After Hours / Emergency — Ph: 250-572-1458

Edmonton, AB
9936-67 Avenue NW
Edmonton, AB — Ph: 780-413-5227
T6E 0P5 — Fax: 780-437-2311
After Hours / Emergency — Ph: 780-913-2299

Fort McMurray, AB
Bay 1, 245 MacDonald Crescent
Fort McMurray, AB — Ph: 780-791-1524
T9H 4B5 — Fax: 780-791-1586
After Hours / Emergency — Ph: 780-714-8482

Winnipeg, MB
1329 Niakwa Road East, Unit 12
Winnipeg, MB — Ph: 204-255-9720
R2J 3T4 — Fax: 204-255-9721
After Hours / Emergency — Ph: 204-764-6677

Saskatoon, SK
819 - 58 Street East
Saskatoon, SK — Ph: 306-668-8370
S7K 6X5 — Fax: 306-668-8383
After Hours / Emergency — Ph: 306-221-7147

Waterloo, ON
60 Northland Drive, Unit 1
Waterloo, ON — Ph: 519-886-6910
N2V 2B8 — Fax: 519-886-9047
After Hours / Emergency — Ph: 519-589-0044

Mississauga, ON
6730 Coopers Avenue, Unit 30
Mississauga, ON — Ph: 905-507-6910
L4Z 2E9 — Fax: 905-507-6927

Richmond Hill, ON
95 West Beaver Creek Road, Unit 1
Richmond Hill, ON — Ph: 905-881-9887
L4B 1H2 — Fax: 905-881-8062

Yellowknife, NT
116 - 314 Old Airport Road
Yellowknife, NT — Ph: 867-873-5593
X1A 3T3 — Fax: 867-920-4238
After Hours / Emergency — Ph: 867-446-5593

Fort St. John, BC
10345A Dogwood Street
Fort St. John, BC — Ph: 250-261-5517
V1J 6W7 — Fax: 250-261-5587
After Hours / Emergency — Ph: 250-261-4947

Fort Nelson, BC
Airport Terminal Building
No.1 Cessna Way, Rm 106 — Ph: 250-775-0929
Fort Nelson, BC
V0C 1R0

Calgary, AB
2559-29th Street NE
Calgary, AB
T1Y 7B5 — Fax: 403-291-0298
After Hours / Emergency — Ph: 403-651-1471

Grande Prairie, AB
9505-111th Street
T8V 5W1 — Fax: 780-513-2191
After Hours / Emergency — Ph: 780-512-4343

Regina, SK
1119 Osler Street
Regina, SK
S4R 8R4
After Hours / Emergency — Ph: 306-221-7147

Thunder Bay, ON
1081 Barton Street
Thunder Bay, ON — Ph: 807-623-6463
P7B 5N3 — Fax: 807-623-7598
After Hours / Emergency — Ph: 807-624-4482

Burlington, ON
5420 Mainway Drive, Unit 5
Burlington, ON — Ph: 905-331-3111
L7L 6A4 — Fax: 905-331-4567

London, ON
309 Exeter Road, Unit #29
London, ON — Ph: 519-652-6044
N6L 1C1 — Fax: 519-652-0671

Ottawa, ON
190 Colonnade Road, Unit 7
Nepean, ON — Ph: 613-225-8279
K2E 7J5 — Fax: 613-225-2801

Whitehorse, YT
12 - 151 Industrial Road
Whitehorse, YT — Ph: 867-668-6689
Y1A 2V3 — Fax: 867-668-6684
After Hours / Emergency — Ph: 867-335-5416

Sample Container, Preservation and Holding Time Table Keep samples cool (4°C) and ship to an ALS location as soon as possible.

Note: Specific container, preservation and holding times may vary based on regulatory requirements - consult your local ALS laboratory for assistance prior to sampling.

Inorganics	Analysis[1]	Water Container	Water Preservation	Additional Notes	Soil Container	Water / Soil Hold Time
ROUTINE INORGANICS AND MISC	Acidity and Alkalinity	0.5-1 L Plastic			125-250 mL Jar or Bag	14 Days / NA
	Anions (Br, Cl, SO4, F) and Electrical Conductivity	0.5-1 L Plastic			125-250 mL Jar or Bag	28 Days [7] / 6 Months
	Bromate, Chlorate and Chlorite	125 mL Plastic	EDA (Ethylenediamine)		NA	28 Days (Chlorite 14 Days)
	BOD, Colour and Turbidity	0.5-1 L Plastic			NA	2-4 Days [8] / NA
	COD and Phenols (4AAP)	125-250 mL Glass	1:1 Sulfuric Acid (H_2SO_4)		NA	28 Days / NA
	Cyanide, Total, Weak Acid Dissociable, Free	145 mL Plastic	6N NaOH		125-250 mL Jar or Bag	14 Days / 14 Days
	Dissolved Oxygen	300 mL BOD bottle	1 each: $MnSO_4$ & alkaline iodide azide pillows		NA	8 Hours / NA
	Dissolved or Total Inorganic Carbon (DIC or TIC)	125-250 mL Glass		Field Filter for Dissolved	125-250 mL Jar or Bag	14 Days / 28 Days
	Dissolved or Total Organic Carbon (DOC or TOC)	125-250 mL Glass	1:1 Sulfuric Acid (H_2SO_4)	Field Filter for Dissolved	125-250 mL Jar or Bag	28 Days / 28 Days
	Flashpoint	2 x 100mL Amber Glass		Zero Headspace	125-250 mL Jar	7 Days / 7 Days
	pH	0.5-1 L Plastic			125-250 mL Jar or Bag	0.25 Hours / 30 Days [9]
	Solids (TS, TSS, TDS)	0.5-1 L Plastic			NA	7 Days / NA
	Sulfide	125 mL Plastic	Zinc Acetate & 6N NaOH		125-250 mL Jar or Bag	7 Days / 7 Days
	Sulfite	125 mL Plastic			NA	0.25 Hours / NA
NUTRIENTS	Ammonia Nitrogen	250 mL Glass or Plastic	1:1 Sulfuric Acid (H_2SO_4)		125-250 mL Jar or Bag	28 Days / 72 Hours
	Nitrate or Nitrite Nitrogen (and Ammonia unpreserved)	0.5-1 L Plastic			NA	2-7 Days [10] / NA
	Nitrogen, Kjeldahl, Organic, Total or Dissolved	250 mL Glass or Plastic	1:1 Sulfuric Acid (H_2SO_4)	Field Filter for Dissolved	NA	28 Days / NA
	Nutrients Available (N,P,K,S)	NA			125-250 mL Jar or Bag	NA / 3 Days [11]
	Phosphorus, Reactive (orthophosphate)	0.5-1 L Plastic			NA	2-7 Days [12] / NA
	Phosphorus, Total Dissolved	250 mL Glass or Plastic	1:1 Sulfuric Acid (H_2SO_4)	Field Filter for Dissolved	NA	28 Days / NA
	Phosphorus, Total	250 mL Glass or Plastic	1:1 Sulfuric Acid (H_2SO_4)		NA	28 Days / NA
METALS	Chromium VI (Hexavalent)	125 mL Plastic	50 % NaOH (BC MoE) or 6N NaOH + Ammonium Buffer (OMoE)		125-250 mL Jar or Bag	28 Days / 30 Days
	Mercury, Methyl	250 mL pre-cleaned Glass or TFE	Contact Lab	Contact Lab	125-250 mL Jar or Bag	6 Months / 28 Days
	Mercury, Total or Dissolved	40 mL Glass Vial or 120 mL Glass	1:1 Hydrochloric Acid (HCl)	Field Filter for Dissolved	125-250 mL Jar or Bag	28 Days / 28 Days
	Metals, Total or Dissolved	125-250 mL Plastic	1:3 Nitric Acid (HNO_3) to pH<2	Field Filter for Dissolved	125-250 mL Jar or Bag	6 Months / 6 Months
Organics						
HYDRO-CARBONS	BTEX / F1 or VPH	2 or 3 x 40 mL Glass Vials [2]	Sodium Bisulfate	Zero Headspace	125 mL Jar, Encore or Terra Core sampling kit [6]	14 Days / 7 Days [13]
	Volatile Organics (THM, Perchloroethylene)	2 or 3 x 40 mL Glass Vials [2]	Sodium Bisulfate [4]	Zero Headspace		14 Days / 7 Days [13]
	CWS F2-F4	2 x 60 mL Amber Glass Vials or 500 mL Amber Glass [3]	Sodium Bisulfate		125 - 500 mL Jar	14 Days [14] / 14 Days
	EPH or LEPH/HEPH	2 x 500 mL Amber Glass	Sodium Bisulfate		125 - 500 mL Jar	14 Days / 14 Days
	Polycyclic Aromatic Hydrocarbons (PAHs)	2 x 0.5 - 1 L Amber Glass	Sodium Bisulfate [5]		125 - 500 mL Jar	14 Days / 14 Days
	Oil & Grease or Mineral Oil & Grease	2 x 0.5 - 1 L Glass	1:1 HCl or H_2SO_4		125 - 500 mL Jar	28 Days / 28 Days
TRACE ORGANICS	Alcohols	2 x 40 mL Glass Vials		Zero Headspace	125 - 500 mL Jar	7 Days / 14 Days
	Alkanolamines (MEA, DEA, DIPA)	125 mL Amber Glass			125 - 500 mL Jar	7 Days / 14 Days
	Dioxins and Furans	2 x 1 L Amber Glass			125 - 500 mL Jar	Unlimited / Unlimited
	AOX	40 - 250 mL Amber Glass	1:3 Nitric Acid (HNO_3) to pH<2		125 - 500 mL Jar	6 months [15] / 28 Days
	Formaldehyde	2 x 40 mL Amber Glass Vials [4]	Ammonium Chloride+Copper Sulfate	Zero Headspace	125 - 500 mL Jar	7 Days / 5 Days
	Glycols	2 x 40 mL Amber Glass Vials			125 - 500 mL Jar	7 Days / 14 Days
	Naphthenic Acids	2 x 250 mL Amber Glass			125 - 500 mL Jar	14 Days / 14 Days
	PCB	2 x 0.5 - 1 L Amber Glass			125 - 500 mL Jar	Unlimited / Unlimited
	Phenolics, Chlorinated and Non-Chlorinated	2 x 0.5 - 1 L Amber Glass	Ascorbic Acid & Sodium Bisulfate [6]		125 - 500 mL Jar	14 Days / 14 Days
	Priority Pollutants (EPA 625 list) or SVOCs	2 x 1 L Amber Glass			125 - 500 mL Jar	7 Days / 14 Days [17]
	Resin Acids & Fatty Acids	2 x 0.5 - 1 L Amber Glass	Ascorbic Acid & NaOH		125 mL Jar	14 Days / 14 Days
	Sulfolane	2 x 0.5 - 1 L Amber Glass			125 mL Jar	7 Days / 14 Days
PESTICIDE RESIDUES	Carbamate Pesticides	2 x 1 L Amber Glass	Potassium Dihydrogen Citrate or ChlorAC buffer		125 - 500 mL Jar	28 Days / 14 Days
	Glyphosate / AMPA	2 x 1 L Amber Glass	Use Sodium Thiosulfate if chlorinated		125 - 500 mL Jar	14 Days / 14 Days
	Herbicides, Acidic	2 x 1 L Amber Glass	Sodium Bisulfate		125 - 500 mL Jar	14 Days / 14 Days
	Nonylphenol & Ethoxylates	2 x 0.5 - 1 L Amber Glass	Sodium Bisulfate		125 - 500 mL Jar	28 Days / 14 Days
	Organochlorine or Organophosphate Pesticides	2 x 1 L Amber Glass			125 - 500 mL Jar	7 Days / 14 Days
	Soil Sterilant Scan	2 x 1 L Amber Glass			250 g Poly Bag	7 Days / 14 Days
Micro						
MICRO-BIOLOGICAL	Coliforms-Fecal, Total, E-coli & HPC	100 - 300 mL Sterilized Plastic	Sodium Thiosulfate		500 mL Sterilized Jar	24-48 Hours [18] (24 - 1…)
	Microtox	1 L Amber Glass			125-250 mL Jar or Bag	3 Days / 3 Days

1. Additional analyses with the same container and preservation may be possible - consult the lab for details.
2. The number of 40 mL glass vials required (2 or 3) for BTEX & VOC varies by lab based on instrumentation. Consult the lab for details.
3. If CWS F2-F4 is required in addition to EPH or LEPH/HEPH, only 2 x 500 mL Amber Glass containers are required. For Ontario Ministry of Environment (OMoE) CWS PHC F2-F4 + F4G, ALS requires 2 x 500 mL Amber Glass.
4. Use Sodium Thiosulfate instead of Sodium Bisulfate if sample is chlorinated.
5. No preservative is required for these analyses in Ontario.
6. Soil sampling options depend on soil location and condition of soil. Terra Core® sampling kit consists of Terra Core® sampler, two pre-weighed 40mL glass vials with methanol preservative and a 125 mL soil jar for moisture. Encore samplers and 125 mL soil jars with zero headspace are other options - consult the lab for details.
7. 4 Days hold time for Electrical Conductivity only as per Ontario MISA.
8. 3 Days hold time for British Columbia as per BC Ministry of Environment (BC MoE), 4 Days hold time as per OMoE.
9. pH in water should be taken in the field as per BC MoE, 4 Days hold time for Ontario MISA and 28 Days hold time for OMoE. 30 Days hold time as received for pH in soil as per OMoE. Unlimited hold time once soil is dried.
10. 3 Days hold time as per BC MoE, 5 Days hold time as per Ontario MISA and 7 Days hold time as per OMoE.
11. 3 Days hold time until received. Unlimited hold time once soil is dried.
12. 3 Days hold time as per BC MoE and 7 Days hold time as per OMoE.
13. 40 Days hold time for field methanol preserved samples, 7 Days hold time for CCME CWS PHC F1 and 2 Days hold time for Enc…
14. 40 Days hold time as per OMoE.
15. 14 Days hold time as per Ontario MISA.
16. 14 Days hold time as per OMoE.
17. 14 Days hold time for water and 60 Days hold time for soil as per OMoE.
18. 30 Hours hold time as per BC Drinking Water Regulation and 48 Hours as per OMoE.

NA FM 032…

White Paper Co. 604 951-3900

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1681194-COFC

COC Number: 14 - 490825

Page 1 of 1

Report To
Company: AZIMUTH CONSULTING GROUP
Contact: ERIC FRANZ
Address: 218-2902 WEST BROADWAY VANCOUVER, BC V6K 2G8
Phone: (604) 730-1220

Report Format / Distribution
Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ Yes ☐ No
☐ Criteria on Report - provide details below if box checked
Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: efranz@azimuthgroup.ca
Email 2: ryan.vanengen@agnicoeagle.com

Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
R ☒ Regular (Standard TAT if received by 3pm)
P ☐ Priority (2-4 business days if received by 3pm)
E ☐ Emergency (1-2 business days if received by 3pm)
E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
Specify Date Required for E2,E or P:

Invoice To
Same as Report To ☑ Yes ☐ No
Copy of Invoice with Report ☐ Yes ☑ No
Company:
Contact:

Invoice Distribution
Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax
Email 2

Project Information
ALS Quote #:
Job #: [redacted] - AMARUQ SURFACE WATER
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)
Approver ID: | Cost Center:
GL Account: | Routing Code:
Activity Code:
Location:

ALS Lab Work Order # (lab use only)
ALS Contact: | Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

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	TOC, Ammonia, TKN (P)	DOC (F/P)	T-CN (low), Free CN (low) (P)	Total Mercury (P)	Dissolved Mercury (F/P)	Total Metals (P)	Dissolved Metals (F/P)	Number of Containers
	A34 - A16	17-sep-15	14:47	Surface water	X	X	X	X	X	X	X	7
	A16 - A14	17-sep-15	15:45	↓	X	X	X	X	X	X	X	7
	C58 OUTLET	19-sep-15	12:20	↓	X	X	X	X	X	X	X	7
	A1 - DS1	19-sep-15	14:55	↓	X	X	X	X	X	X	X	7
	A17 - A16	19-sep-15	16:10	↓	X	X	X	X	X	X	X	7
	A13 - A12	21-sep-15	12:38	↓	X	X	X	X	X	X	X	7
	E5 - E4	21-sep-15	13:00	↓	X	X	X	X	X	X	X	7

Drinking Water (DW) Samples[1] (client use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No
Are samples for human drinking water use? ☐ Yes ☐ No

Special Instructions / Specify Criteria to add on report (client Use)

SAMPLE CONDITION AS RECEIVED (lab use only)
Frozen ☐ | SIF Observations Yes ☐ No ☐
Ice packs Yes ☐ No ☐ | Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐
INITIAL COOLER TEMPERATURES °C | FINAL COOLER TEMPERATURES °C: 12

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: Shafeel	Date: Sept 30	Time: 1130

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY

NA FM-0326e 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.

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

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 24-SEP-15
Report Date: 30-SEP-15 14:08 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1678136

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers: 1, 2
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1678136-1 Surface Water 18-SEP-15 WTN-05-S	L1678136-2 Surface Water 18-SEP-15 WTN-06-S	L1678136-3 Surface Water 18-SEP-15 WTS-05-S	L1678136-4 Surface Water 18-SEP-15 WTS-06-S	L1678136-5 Surface Water 19-SEP-15 NEM-05-S
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
WATER						
Physical Tests	Conductivity (uS/cm)	25.2	21.8	20.3	20.5	25.3
	pH (pH)	6.81	6.75	6.75	6.76	7.05
	Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Total Dissolved Solids (mg/L)	18.0	17.7	16.0	15.5	17.4
	Turbidity (NTU)	0.32	0.35	0.34	0.35	0.21
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	5.3	4.6	4.4	4.3	7.5
	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)	5.3	4.6	4.4	4.3	7.5
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	2.99	2.38	2.11	2.10	0.53
	Fluoride (F) (mg/L)	0.026	0.026	0.026	0.026	0.023
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Silicate (as SiO2) (mg/L)	0.69	0.67	0.68	0.65	0.62
	Sulfate (SO4) (mg/L)	1.49	1.37	1.32	1.32	3.22

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1678136-6 Surface Water 19-SEP-15 NEM-06-S	L1678136-7 Surface Water 19-SEP-15 MAM-05-S	L1678136-8 Surface Water 19-SEP-15 MAM-06-S	L1678136-9 Surface Water 20-SEP-15 C2-SEP	L1678136-10 Surface Water 20-SEP-15 C14-SEP
Sample ID / **Description** / **Sampled Date** / **Sampled Time** / **Client ID**						
WATER						
Physical Tests	Conductivity (uS/cm)	25.4	25.7	25.5	23.8	24.4
	pH (pH)	7.04	6.86	6.83	6.87	7.08
	Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	1.5
	Total Dissolved Solids (mg/L)	16.5	17.8	18.1	17.4	19.4
	Turbidity (NTU)	0.20	0.26	0.30	0.31	0.72
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	7.2	5.2	5.1	5.7	8.9
	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)	7.2	5.2	5.1	5.7	8.9
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	0.54	2.59	2.58	0.51	0.55
	Fluoride (F) (mg/L)	0.023	0.025	0.025	0.073	0.034
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Silicate (as SiO2) (mg/L)	0.60	0.79	0.76	1.14	0.74
	Sulfate (SO4) (mg/L)	3.19	2.24	2.24	3.97	1.55

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1678136-11 Surface Water 20-SEP-15 C17-SEP	L1678136-12 Surface Water 20-SEP-15 C20-SEP	L1678136-13 Surface Water 20-SEP-15 C41-SEP	L1678136-14 Surface Water 20-SEP-15 AMARUQ SEP DUP-1	L1678136-15 Surface Water 19-SEP-15 AMARUQ SEP EB-1
WATER						
Physical Tests	Conductivity (uS/cm)	22.9	21.7	25.2	21.4	<2.0
	pH (pH)	7.00	7.04	6.93	6.76	5.54
	Total Suspended Solids (mg/L)	<1.0	<1.0	9.0	<1.0	<1.0
	Total Dissolved Solids (mg/L)	18.6	14.4	20.4	17.0	<3.0
	Turbidity (NTU)	0.50	0.45	1.53	0.32	<0.10
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	7.7	7.5	6.7	4.3	<1.0
	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)	7.7	7.5	6.7	4.3	<1.0
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	0.58	0.63	0.62	2.36	<0.10
	Fluoride (F) (mg/L)	0.048	0.037	0.054	0.026	<0.020
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	0.0148	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total Dissolved (mg/L)	0.0022	<0.0020	0.0022	<0.0020	<0.0020
	Silicate (as SiO2) (mg/L)	0.97	<0.50	1.39	0.67	<0.50
	Sulfate (SO4) (mg/L)	1.52	1.63	3.26	1.37	<0.30

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Alkalinity, Total (as CaCO3)	B	L1678136-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Fluoride (F)	DLM	L1678136-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nitrite (as N)	DLM	L1678136-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nitrate (as N)	DLM	L1678136-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Orthophosphate-Dissolved (as P)	MS-B	L1678136-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
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.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)

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

CL-L-IC-N-VA	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)

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

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

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

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

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

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

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

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

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

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.

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

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

SILICATE-COL-VA	Water	Silicate by Colourimetric analysis	APHA 4500-SiO2 E.

Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.

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

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

TDS-LOW-VA Water Low Level TDS (3.0mg/L) by Gravimetric APHA 2540C

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-LOW-VA Water Total Suspended Solids by Grav. (1 mg/L) APHA 2540D

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.

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
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 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.

ALS Environmental

Chain of Custody / Analytical Request Form
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www.alsglobal.com

COC # _____

Page 1 of 2

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☑ PDF ☑ Excel ☐ Digital ☐ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1:	efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2:	gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3:	ryan.vanengen@agnicoeagle.com	**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	**Client / Project Information**		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Amaruq Surfacewater	
Company:		PO / AFE:		
Contact:		LSD:		
Address:				
Phone:	Fax:	Quote #:	Q39503	
Lab Work Order # (lab use only)	L1678136	**ALS Contact:**	Brent Mack	**Sampler:** Morgan Finley

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conventionals** see notes	TSS-Low, TDS-Low							Number of Containers
	WTN-05-S	18-Sept-15		Surface Water	X	X							2
	WTN-06-S			Surface Water	X	X							2
	WTS-05-S			Surface Water	X	X							2
	WTS-06-S			Surface Water	X	X							2
	NEM-05-S	19-Sept-15		Surface Water	X	X							2
	NEM-06-S			Surface Water	X	X							2
	MAM-05-S			Surface Water	X	X							2
	MAM-06-S			Surface Water	X	X							2
	C2-SEP	20-Sept-15		Surface Water	X	X							2
	C14-SEP			Surface Water	X	X							2
	C17-SEP			Surface Water	X	X							2
	C20-SEP			Surface Water	X	X							2

Short Holding Time
Rush Processing

L1678136-COFC

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

**Conventionals includes: Alk Species, pH, EC, Turbidity, Conductivity, Anions (F, NO2, NO3, Br, SO4), low-level Chloride, Silicate, TD-P, and Ortho-PO4.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Morgan Finley	21-Sept-15		lady	Sept.24	9AM	14.3 14.8 °C				

GENF 20.00 Front

ALS Environmental

Chain of Custody / Analytical Request Form

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Page ___ of ___

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		ALS Contact: Brent Mack	Sampler: Morgan Finley

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conventionals** see notes	TSS-Low, TDS-Low	Number of Containers
	C41-SEP	20-Sept-15		Surface Water	X	X	2
	AMARUQ SEP DUP-1			Surface Water	X	X	2
	AMARUQ SEP EB-1	19-Sept-15		Surface Water	X	X	2

L1678136-COFC

Short Holding Time

Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

**Conventionals includes: Alk Species, pH, EC, Turbidity, Conductivity, Anions (F, NO2, NO3, Br, SO4), low-level Chloride, Silicate, TD-P, and Ortho-PO4.

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Morgan Finley	21-Sept-15		Jody	Sept-24	9Am	14.3 14.8 °C				

GENF 20.00 Front

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 24-SEP-15
Report Date: 05-OCT-15 15:12 (MT)
Version: FINAL

Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1678156

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers:
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1678156-1	L1678156-2	L1678156-3	L1678156-4	L1678156-5
	Description	Other	Other	Other	Other	Other
	Sampled Date	18-SEP-15	18-SEP-15	18-SEP-15	18-SEP-15	18-SEP-15
	Sampled Time					
	Client ID	WTN-05-S	WTN-06-S	WTS-05-S	WTS-06-S	NEM-05-S
Grouping	**Analyte**					
FILTER						
Plant Pigments	Chlorophyll a (ug/L)	0.769	0.934	0.822	0.884	0.526

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1678156-6	L1678156-7	L1678156-8	L1678156-9	L1678156-10
	Description	Other	Other	Other	Other	Other
	Sampled Date	18-SEP-15	18-SEP-15	18-SEP-15	18-SEP-15	18-SEP-15
	Sampled Time					
	Client ID	NEM-06-S	MAM-05-S	MAM-06-S	C2-SEP	C14-SEP
Grouping	**Analyte**					
FILTER						
Plant Pigments	Chlorophyll a (ug/L)	0.500	0.801	0.704	0.608	1.50

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1678156-11	L1678156-12	L1678156-13	L1678156-14	
	Description	Other	Other	Other	Other	
	Sampled Date	18-SEP-15	18-SEP-15	18-SEP-15	18-SEP-15	
	Sampled Time					
	Client ID	C17-SEP	C20-SEP	C41-SEP	AMARUQ SEP DUP-1	
Grouping	**Analyte**					
FILTER						
Plant Pigments	Chlorophyll a (ug/L)	0.791	0.556	2.30	0.847	

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CHLOROA-F-VA	Filter	Chlorophyll a by Fluorometer (Filter)	EPA 445.0

This analysis is done using procedures modified from EPA Method 445.0. Chlorophyll-a is determined by a routine acetone extraction followed with analysis by fluorometry using the non-acidification procedure. This method is not subject to interferences from chlorophyll b.

** 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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg 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.

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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.

Short Holding Time

ALS Environmental

Rush Processing

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L1678156-COFC

COC # _____

Page 1 of 2

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☑ PDF ☑ Excel ☐ Digital ☐ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1:	efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2:	gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3:	ryan.vanengen@agnicoeagle.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:		
Contact:		LSD:		
Address:				
Phone:	Fax:	Quote #:	Q39503	
Lab Work Order # (lab use only)		ALS Contact:	Brent Mack	Sampler: Morgan Finley

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Chlorophyll 'a'	Number of Containers
	WTN-05-S	18-Sep-15		Other	X	1
	WTN-06-S			Other	X	1
	WTS-05-S			Other	X	1
	WTS-06-S			Other	X	1
	NEM-05-S	19-Sep-15		Other	X	1
	NEM-06-S			Other	X	1
	MAM-05-S			Other	X	1
	MAM-06-S			Other	X	1
	C2-SEP	20-Sep-15		Other	X	1
	C14-SEP			Other	X	1
	C17-SEP			Other	X	1
	C20-SEP			Other	X	1

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Morgan Finley			Jean	24/9	8:50	13 °C				

GENF 20.00 Front

ALS Environmental

Chain of Custody / Analytic
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L1678156-COFC

COC # _____

Page 2 of 2

Report To				Report Format / Distribution				Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group			☑ Standard	☐ Other			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz			☑ PDF	☑ Excel	☐ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway			Email 1:	efranz@azimuthgroup.ca			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8			Email 2:	gmann@azimuthgroup.ca			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220	Fax:		Email 3:	ryan.vanengen@agnicoeagle.com			**Analysis Request**
Invoice To	Same as Report ?	☑ Yes	☐ No	**Client / Project Information**				Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?		☐ Yes	☑ No	Job #:	Amaruq Surfacewater			
Company:				PO / AFE:				
Contact:				LSD:				
Address:								
Phone:		Fax:		Quote #:	Q39503			
Lab Work Order # (lab use only)				ALS Contact:	Brent Mack	Sampler:	Morgan Finley	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Chlorophyll 'a'											Number of Containers
	C41-SEP	20-Sep-15		Other	X											1
	AMARUQ SEP DUP-1	-	-	Other	X											1

Short Holding Time

Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Morgan Finley.			Jean	24/9	8:50	13 °C				

GENF 20.00 Front

AZIMUTH CONSULTING GROUP INC.
ATTN: Eric Franz
218 - 2902 West Broadway
Vancouver BC V6K 2G8

Date Received: 28-SEP-15
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Client Phone: 604-730-1220

Certificate of Analysis

Lab Work Order #: L1679751

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ SURFACEWATER
C of C Numbers: 1, 2
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1679751-1 Surface Water 18-SEP-15 WTN-05-S	L1679751-2 Surface Water 18-SEP-15 WTN-06-S	L1679751-3 Surface Water 18-SEP-15 WTS-05-S	L1679751-4 Surface Water 18-SEP-15 WTS-06-S	L1679751-5 Surface Water 19-SEP-15 NEM-05-S
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	8.63	7.76	7.30	7.30	9.63
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Total Kjeldahl Nitrogen (mg/L)	0.116	0.118	0.120	0.129	0.123
	Phosphorus (P)-Total (mg/L)	<0.0020	0.0031	0.0023	<0.0020	<0.0020
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.81	1.74	1.74	1.76	1.44
	Total Organic Carbon (mg/L)	1.70	1.77	1.77	1.74	1.34
Total Metals	Aluminum (Al)-Total (mg/L)	0.0116	0.0120	0.0107	0.0111	0.0032
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00019	0.00018	0.00017	0.00017	0.00031
	Barium (Ba)-Total (mg/L)	0.00410	0.00372	0.00354	0.00347	0.00384
	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)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	2.15	1.95	1.77	1.78	2.14
	Chromium (Cr)-Total (mg/L)	0.00014	0.00011	0.00012	0.00011	0.00011
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.021	0.024	0.024	0.022	0.011
	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)	0.71	0.70	0.66	0.66	0.98
	Manganese (Mn)-Total (mg/L)	0.00365	0.00294	0.00256	0.00249	0.00248
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	<0.000050	0.000059	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Total (mg/L)	0.00060	0.00061	0.00052	0.00050	0.00053
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	0.39	0.38	0.37	0.36	0.56
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	0.247	0.263	0.256	0.255	0.210
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	0.526	0.546	0.531	0.536	0.485
	Strontium (Sr)-Total (mg/L)	0.0145	0.0128	0.0113	0.0115	0.00945
	Sulfur (S)-Total (mg/L)	0.54	0.53	<0.50	0.50	1.12

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1679751-6	L1679751-7	L1679751-8	L1679751-9	L1679751-10
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	19-SEP-15	19-SEP-15	19-SEP-15	20-SEP-15	20-SEP-15
Sampled Time					
Client ID	NEM-06-S	MAM-05-S	MAM-06-S	C2-SEP	C14-SEP
Grouping / **Analyte**					
WATER					
Physical Tests Hardness (as CaCO3) (mg/L)	9.61	9.18	9.21	9.21	10.3
Anions and Nutrients Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Kjeldahl Nitrogen (mg/L)	0.115	0.135	0.131	0.125	0.188
Phosphorus (P)-Total (mg/L)	<0.0020	<0.0020	0.0031	<0.0020	0.0042
Cyanides Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon Dissolved Organic Carbon (mg/L)	1.22	1.46	1.54	1.47	2.34
Total Organic Carbon (mg/L)	1.55	1.60	1.62	1.50	2.36
Total Metals Aluminum (Al)-Total (mg/L)	0.0043	0.0062	0.0080	0.0091	0.0338
Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (As)-Total (mg/L)	0.00032	0.00040	0.00041	0.00018	0.00042
Barium (Ba)-Total (mg/L)	0.00391	0.00457	0.00464	0.00343	0.00372
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)	<0.0000050	<0.0000050	0.0000056	<0.0000050	0.0000064
Calcium (Ca)-Total (mg/L)	2.14	2.33	2.41	2.26	2.84
Chromium (Cr)-Total (mg/L)	0.00011	0.00012	0.00013	<0.00010	0.00023
Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	0.00077	0.00073
Iron (Fe)-Total (mg/L)	0.010	0.016	0.019	0.039	0.108
Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	0.000086	<0.000050	0.000109
Lithium (Li)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium (Mg)-Total (mg/L)	0.97	0.77	0.79	0.84	0.75
Manganese (Mn)-Total (mg/L)	0.00266	0.00220	0.00245	0.00106	0.00912
Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	0.0000080	<0.0000050
Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel (Ni)-Total (mg/L)	0.00053	0.00057	0.00061	<0.00050	<0.00050
Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total (mg/L)	0.53	0.48	0.49	0.30	0.35
Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Total (mg/L)	0.209	0.288	0.300	0.464	0.345
Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total (mg/L)	0.490	0.537	0.552	0.536	0.533
Strontium (Sr)-Total (mg/L)	0.00945	0.0133	0.0134	0.0119	0.0150
Sulfur (S)-Total (mg/L)	1.11	0.79	0.86	1.39	0.61

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1679751-11 Surface Water 20-SEP-15 C17-SEP	L1679751-12 Surface Water 20-SEP-15 C20-SEP	L1679751-13 Surface Water 20-SEP-15 C41-SEP	L1679751-14 Surface Water 20-SEP-15 AMARUQ SEP DUP-1	L1679751-15 Surface Water 19-SEP-15 AMARUQ SEP EB-1
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	9.40	8.83	9.88	8.09	<0.50
Anions and Nutrients	Ammonia, Total (as N) (mg/L)	<0.0050	0.0051	<0.0050	<0.0050	<0.0050
	Total Kjeldahl Nitrogen (mg/L)	0.160	0.234	0.203	0.121	<0.050
	Phosphorus (P)-Total (mg/L)	0.0026	0.0072	0.0071	<0.0020	<0.0020
Cyanides	Cyanide, Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Cyanide, Free (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	2.69	1.41	1.88	1.79	<0.50
	Total Organic Carbon (mg/L)	2.65	2.12	1.91	1.87	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	0.0156	0.0099	0.0647	0.0112	<0.0030
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00029	0.00017	0.00027	0.00018	<0.00010
	Barium (Ba)-Total (mg/L)	0.00243	0.00190	0.00592	0.00374	<0.000050
	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)	<0.0000050	0.0000093	0.0000082	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	2.43	2.17	2.18	1.93	<0.050
	Chromium (Cr)-Total (mg/L)	0.00018	0.00010	0.00079	0.00017	<0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	0.00013	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	0.00070	<0.00050	0.00107	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.078	0.021	0.336	0.021	<0.010
	Lead (Pb)-Total (mg/L)	<0.000050	0.000372	0.000317	<0.000050	0.000190 RRV
	Lithium (Li)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Magnesium (Mg)-Total (mg/L)	0.79	0.75	1.20	0.70	<0.10
	Manganese (Mn)-Total (mg/L)	0.00762	0.00131	0.00591	0.00262	<0.00010
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	0.000078	<0.000050	<0.000050
	Nickel (Ni)-Total (mg/L)	0.00052	<0.00050	0.00462	0.00057	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	0.35	0.30	0.33	0.36	<0.10
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	0.404	0.164	0.722	0.259	<0.050
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	0.560	0.487	0.555	0.522	<0.050
	Strontium (Sr)-Total (mg/L)	0.0128	0.00905	0.0107	0.0126	<0.00020
	Sulfur (S)-Total (mg/L)	0.58	0.58	1.18	<0.50	<0.50

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1679751-1 Surface Water 18-SEP-15 WTN-05-S	L1679751-2 Surface Water 18-SEP-15 WTN-06-S	L1679751-3 Surface Water 18-SEP-15 WTS-05-S	L1679751-4 Surface Water 18-SEP-15 WTS-06-S	L1679751-5 Surface Water 19-SEP-15 NEM-05-S
Sample ID / Description / Sampled Date / Sampled Time / Client ID						
WATER						
Total Metals	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	<0.00030	<0.00030	<0.00030	<0.00030
	Uranium (U)-Total (mg/L)	0.000032	0.000035	0.000035	0.000035	<0.000010
	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	<0.0030	<0.0030
	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)	0.0035	0.0038	0.0033	0.0033	0.0024
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00017	0.00017	0.00014	0.00013	0.00026
	Barium (Ba)-Dissolved (mg/L)	0.00423	0.00373	0.00339	0.00340	0.00395
	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	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	2.24	1.96	1.82	1.82	2.19
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00034	0.00031	0.00033	0.00031	0.00026
	Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	0.000053	<0.000050	0.000556 DTC
	Lithium (Li)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Magnesium (Mg)-Dissolved (mg/L)	0.74	0.70	0.67	0.67	1.01
	Manganese (Mn)-Dissolved (mg/L)	0.00135	0.00084	0.00057	0.00065	0.00057
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Dissolved (mg/L)	0.00061	0.00053	<0.00050	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	0.41	0.39	0.36	0.37	0.56
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Dissolved (mg/L)	0.245	0.246	0.241	0.239	0.205
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	0.534	0.532	0.515	0.518	0.478
	Strontium (Sr)-Dissolved (mg/L)	0.0150	0.0128	0.0116	0.0115	0.00939
	Sulfur (S)-Dissolved (mg/L)	0.53	<0.50	<0.50	<0.50	1.08

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1679751-6 Surface Water 19-SEP-15 NEM-06-S	L1679751-7 Surface Water 19-SEP-15 MAM-05-S	L1679751-8 Surface Water 19-SEP-15 MAM-06-S	L1679751-9 Surface Water 20-SEP-15 C2-SEP	L1679751-10 Surface Water 20-SEP-15 C14-SEP
WATER						
Total Metals	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	<0.00030	<0.00030	<0.00030	0.00096
	Uranium (U)-Total (mg/L)	<0.000010	0.000022	0.000024	0.000036	0.000040
	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	<0.0030	<0.0030
	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)	0.0017	0.0025	0.0033	0.0033	0.0053
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00028	0.00034	0.00036	0.00014	0.00029
	Barium (Ba)-Dissolved (mg/L)	0.00391	0.00432	0.00436	0.00309	0.00338
	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	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	2.19	2.38	2.40	2.29	2.89
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00021	0.00037	0.00054	0.00070	0.00060
	Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	<0.010	0.013	0.019
	Lead (Pb)-Dissolved (mg/L)	0.000104	0.000270 DTC	<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)	1.01	0.78	0.78	0.85	0.76
	Manganese (Mn)-Dissolved (mg/L)	0.00052	0.00068	0.00074	0.00081	0.00358
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	0.0000063	0.0000055	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00051	0.00056	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	0.56	0.49	0.49	0.31	0.34
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Dissolved (mg/L)	0.210	0.278	0.276	0.457	0.290
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	0.477	0.527	0.523	0.527	0.517
	Strontium (Sr)-Dissolved (mg/L)	0.00941	0.0130	0.0130	0.0121	0.0147
	Sulfur (S)-Dissolved (mg/L)	1.08	0.78	0.79	1.36	0.57

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1679751-11 Surface Water 20-SEP-15 C17-SEP	L1679751-12 Surface Water 20-SEP-15 C20-SEP	L1679751-13 Surface Water 20-SEP-15 C41-SEP	L1679751-14 Surface Water 20-SEP-15 AMARUQ SEP DUP-1	L1679751-15 Surface Water 19-SEP-15 AMARUQ SEP EB-1
WATER						
Total Metals	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	<0.00030	0.00134	<0.00030	<0.00030
	Uranium (U)-Total (mg/L)	0.000041	0.000022	0.000060	0.000035	<0.000010
	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	<0.0030	<0.0030
	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)	0.0049	0.0086	0.0053	0.0037	<0.0010
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00027	0.00015	0.00011	0.00017	<0.00010
	Barium (Ba)-Dissolved (mg/L)	0.00228	0.00196	0.00477	0.00380	<0.000050
	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	0.0000067	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	2.45	2.25	2.10	2.06	<0.050
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	0.00014	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00064	0.00041	0.00068	0.00033	<0.00020
	Iron (Fe)-Dissolved (mg/L)	0.036	0.014	0.030	<0.010	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.000098	<0.000050	<0.000050	0.000069 RRV
	Lithium (Li)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Magnesium (Mg)-Dissolved (mg/L)	0.80	0.78	1.13	0.71	<0.10
	Manganese (Mn)-Dissolved (mg/L)	0.00630	0.00077	0.00169	0.00085	<0.00010
	Mercury (Hg)-Dissolved (mg/L)	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050	0.000104	<0.000050	<0.000050
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050	0.00329	0.00051	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	0.36	0.35	0.33	0.37	<0.10
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Dissolved (mg/L)	0.383	0.163	0.606	0.243	<0.050
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	0.554	0.481	0.565	0.523	<0.050
	Strontium (Sr)-Dissolved (mg/L)	0.0124	0.00917	0.0102	0.0132	<0.00020
	Sulfur (S)-Dissolved (mg/L)	0.56	0.58	1.11	<0.50	<0.50

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1679751-1	L1679751-2	L1679751-3	L1679751-4	L1679751-5
Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sampled Date	18-SEP-15	18-SEP-15	18-SEP-15	18-SEP-15	19-SEP-15
Sampled Time					
Client ID	WTN-05-S	WTN-06-S	WTS-05-S	WTS-06-S	NEM-05-S
Grouping / **Analyte**					
WATER					
Dissolved Metals 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)	0.000028	0.000028	0.000028	0.000029	<0.000010
Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	0.0011
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

Grouping	Analyte	L1679751-6 Surface Water 19-SEP-15 NEM-06-S	L1679751-7 Surface Water 19-SEP-15 MAM-05-S	L1679751-8 Surface Water 19-SEP-15 MAM-06-S	L1679751-9 Surface Water 20-SEP-15 C2-SEP	L1679751-10 Surface Water 20-SEP-15 C14-SEP
Sample ID / Description / Sampled Date / Sampled Time / Client ID						
WATER						
Dissolved Metals	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	0.000017	0.000017	0.000030	0.000026
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	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

Grouping	Analyte	L1679751-11 Surface Water 20-SEP-15 C17-SEP	L1679751-12 Surface Water 20-SEP-15 C20-SEP	L1679751-13 Surface Water 20-SEP-15 C41-SEP	L1679751-14 Surface Water 20-SEP-15 AMARUQ SEP DUP-1	L1679751-15 Surface Water 19-SEP-15 AMARUQ SEP EB-1
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
WATER						
Dissolved Metals	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	0.00034	<0.00030	<0.00030	<0.00030
	Uranium (U)-Dissolved (mg/L)	0.000035	0.000021	0.000025	0.000027	<0.000010
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	0.0060	<0.0010
	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.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Calcium (Ca)-Total	B	L1679751-1, -2
Matrix Spike	Total Kjeldahl Nitrogen	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Phosphorus (P)-Total	MS-B	L1679751-1, -2, -3, -4
Matrix Spike	Phosphorus (P)-Total	MS-B	L1679751-10, -11, -12, -13, -14, -15, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Boron (B)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1679751-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Total Organic Carbon	MS-B	L1679751-14, -15
Matrix Spike	Barium (Ba)-Total	MS-B	L1679751-10, -11, -12, -13, -14, -15, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Molybdenum (Mo)-Total	MS-B	L1679751-10, -11, -12, -13, -14, -15, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Total	MS-B	L1679751-10, -11, -12, -13, -14, -15, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
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**
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.

Reference Information

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

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CARBONS-TOC-VA Water Total organic carbon by combustion APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CN-FREE-L-CFA-VA Water Low Level Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

CN-T-L-CFA-VA Water Low Level 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.

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.

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-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.

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

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

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 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, 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.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

** 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

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 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.

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 2 of 2

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	**Client / Project Information**	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)		**ALS Contact:** Brent Mack	**Sampler:** Morgan Finley

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	P TOC, Ammonia, TKN, Total P	F/P DOC	P T-CN (Low), Free CN (Low)	P Total mercury	F/P Dissolved mercury	P Total Metals	F/P Dissolved Metals	Number of Containers
	C41-SEP	20-Sept-15		Surface Water	X	X	X	X	X	X	X	7
	AMARUQ SEP DUP-1			Surface Water	X	X	X	X	X	X	X	7
	AMARUQ SEP EB-1	19-Sept-15		Surface Water	X	X	X	X	X	X	X	7

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Morgan Finley	21-Sept-15					°C				

GENF 20.00 Front

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Azimuth Consulting Group	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Eric Franz	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	218-2902 West Broadway	Email 1: efranz@azimuthgroup.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6K2G8	Email 2: gmann@azimuthgroup.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-730-1220 Fax:	Email 3: ryan.vanengen@agnicoeagle.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Amaruq Surfacewater	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q39503	
Lab Work Order # (lab use only)	L1679751	ALS Contact: Brent Mack	Sampler: Morgan Finley

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	TOC, Ammonia, TKN, Total P	DOC	T-CN (Low), Free CN (Low)	Total mercury	Dissolved mercury	Total Metals	Dissolved Metals						Number of Containers
					P	F/P	P	P	F/P	P	F/P						
	WTN-05-S	18-Sept-15		Surface Water	X	X	X	X	X	X	X						7
	WTN-06-S			Surface Water	X	X	X	X	X	X	X						7
	WTS-05-S			Surface Water	X	X	X	X	X	X	X						7
	WTS-06-S			Surface Water	X	X	X	X	X	X	X						7
	NEM-05-S	19-Sept-15		Surface Water	X	X	X	X	X	X	X						7
	NEM-06-S			Surface Water	X	X	X	X	X	X	X						7
	MAM-05-S			Surface Water	X	X	X	X	X	X	X						7
	MAM-06-S			Surface Water	X	X	X	X	X	X	X						7
	C2-SEP	20-Sept-15		Surface Water	X	X	X	X	X	X	X						7
	C14-SEP			Surface Water	X	X	X	X	X	X	X						7
	C17-SEP			Surface Water	X	X	X	X	X	X	X						7
	C20-SEP			Surface Water	X	X	X	X	X	X	X						7

L1679751-COFC

Short Holding Time

Rush Processing

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Morgan Finley	21-Sept-15		Shafee	Sept.28	1230	14/14/13°C				

APPENDIX D

Golder Memorandum – Stream Water Quality Program

MEMORANDUM

TO Azimuth Consulting: Gary Mann and Maggie McConnell **DATE** 10 December 2015

CC Dionne Filiatrault, Jen Range

FROM Colleen Prather **PROJECT No.** Doc 030-1524321.1010.1011 Ver 1

AMARUQ STREAM WATER QUALITY PROGRAM

Methods:

- Sample summary
  - Field measurements were recorded at 16 tributaries during the August sampling program (Table 1).
  - One set of water quality grab samples were collected at 11 tributaries during the August sampling program (Table 1); two quality control samples (travel blank and a duplicate from A8-A7) were also collected.
  - One set of water quality grab samples were collected at 6 tributaries during the September sampling program; one quality control sample (duplicate from A1-DS1) was also collected.
- Field measurements
  - In situ physico-chemical measurements of specific conductivity, dissolved oxygen (concentration and percent saturation), pH, and water temperature were collected using a submersible YSI Pro Plus multi-sensor probe system (Table 2).
  - Measurements were taken below the water surface in an area of flow.
  - Additional field notes are provided in Table 3.
- Laboratory water quality samples
  - Water samples were collected at a depth of 0.3 m (30 cm), unless water depth was less than 0.3 m.
  - If water depth was less than 0.3 m, water samples were collected at 0.1 m.
  - The actual sampling depth was recorded on the field data sheet.
  - Sample bottles were filled directly in the field.
  - Samples were processed (i.e., filtered and/or preserved) according to the instructions provided by ALS Environmental (ALS).
  - Samples requiring filtration were filtered through a 0.45 micron (µm) Millipore filter in a Nalgene filter tower.
  - Samples were submitted to ALS as soon as possible after sample collection for analysis of a suite of parameters including: