Municipality of Sanikiluaq
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Sanikiluaq NU X0A 0W0

Date Received: 28-SEP-12
Report Date: 17-OCT-12 19:47 (MT)
Version: FINAL

Client Phone: 867-266-7900

Certificate of Analysis

Lab Work Order #: L1216768

Project P.O. #: NOT SUBMITTED
Job Reference: HAMLET OF SANIKILUAQ WWTP
C of C Numbers:
Legal Site Desc:

Gail Hill
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216768-1 SANIKILUAQ - SANI 2							
Sampled By: SEAN PHILLIPS on 28-SEP-12 @ 09:00							
Matrix: WASTEWATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-OCT-12	R2448472
Toluene	<0.0010		0.0010	mg/L		06-OCT-12	R2448472
Ethyl benzene	<0.00050		0.00050	mg/L		06-OCT-12	R2448472
o-Xylene	<0.00050		0.00050	mg/L		06-OCT-12	R2448472
m+p-Xylenes	<0.00050		0.00050	mg/L		06-OCT-12	R2448472
Xylenes	<0.0015		0.0015	mg/L		06-OCT-12	R2448472
F1 (C6-C10)	<0.10		0.10	mg/L		06-OCT-12	R2448472
Surrogate: 4-Bromofluorobenzene (SS)	92.3		70-130	%		06-OCT-12	R2448472
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		10-OCT-12	
F3-PAH	<0.25		0.25	mg/L		10-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		10-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F3 (C16-C34)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F4 (C34-C50)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
Surrogate: 2-Bromobenzotrifluoride	94.8		65-135	%	29-SEP-12	29-SEP-12	R2446755
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		01-OCT-12	R2447410
Biochemical Oxygen Demand	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448952
BOD Carbonaceous	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448951
Fecal Coliforms	23		3	MPN/100mL		02-OCT-12	R2448486
Phenols (4AAP)	<0.0010		0.0010	mg/L	05-OCT-12	05-OCT-12	R2450272
Phosphorus (P)-Total	<0.010		0.010	mg/L		04-OCT-12	R2449172
Total Organic Carbon	3.6		1.0	mg/L		05-OCT-12	R2451620
Total Suspended Solids	<5.0		5.0	mg/L		01-OCT-12	R2447372
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Acridine	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Chrysene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluoranthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluorene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Naphthalene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Phenanthrene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Quinoline	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acenaphthene d10	96.6		50-150	%	03-OCT-12	09-OCT-12	R2452323

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216768-1 SANIKILUAQ - SANI 2							
Sampled By: SEAN PHILLIPS on 28-SEP-12 @ 09:00							
Matrix: WASTEWATER							
Polyaromatic Hydrocarbons (PAHs)							
Surrogate: Acridine d9	95.4		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Chrysene d12	75.2		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Naphthalene d8	89.1		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Phenanthrene d10	96.3		50-150	%	03-OCT-12	09-OCT-12	R2452323
ROU4W total							
Alkalinity							
Alkalinity, Total (as CaCO3)	209		20	mg/L		29-SEP-12	R2446360
Bicarbonate (HCO3)	250		24	mg/L		29-SEP-12	R2446360
Carbonate (CO3)	<12		12	mg/L		29-SEP-12	R2446360
Hydroxide (OH)	<6.8		6.8	mg/L		29-SEP-12	R2446360
Chloride by Ion Chromatography							
Chloride	58.5		0.50	mg/L		29-SEP-12	R2448095
Conductivity							
Conductivity	673		20	umhos/cm		29-SEP-12	R2446360
Fluoride by Ion Chromatography							
Fluoride	<0.10		0.10	mg/L		29-SEP-12	R2448095
Hardness Calculated							
Hardness (as CaCO3)	256		0.30	mg/L		11-OCT-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	0.166		0.050	mg/L		29-SEP-12	R2448095
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.166		0.071	mg/L		03-OCT-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		29-SEP-12	R2448095
Sulfate by Ion Chromatography							
Sulfate	58.9		0.50	mg/L		29-SEP-12	R2448095
TDS calculated							
TDS (Calculated)	392		5.0	mg/L		11-OCT-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.032		0.020	mg/L	09-OCT-12	10-OCT-12	R2453446
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Arsenic (As)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Barium (Ba)-Total	0.0175		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Boron (B)-Total	0.181		0.030	mg/L	09-OCT-12	10-OCT-12	R2453446
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	09-OCT-12	10-OCT-12	R2453446
Calcium (Ca)-Total	61.8		0.20	mg/L	09-OCT-12	10-OCT-12	R2453446
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Copper (Cu)-Total	0.0059		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Iron (Fe)-Total	<0.10		0.10	mg/L	09-OCT-12	10-OCT-12	R2453446
Lead (Pb)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Lithium (Li)-Total	0.0036		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Magnesium (Mg)-Total	24.6		0.050	mg/L	09-OCT-12	10-OCT-12	R2453446
Manganese (Mn)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Molybdenum (Mo)-Total	0.00103		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Phosphorus (P)-Total	<0.50		0.50	mg/L	09-OCT-12	10-OCT-12	R2453446
Potassium (K)-Total	4.13		0.10	mg/L	09-OCT-12	10-OCT-12	R2453446
Rubidium (Rb)-Total	0.00172		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216768-1 SANIKILUAQ - SANI 2							
Sampled By: SEAN PHILLIPS on 28-SEP-12 @ 09:00							
Matrix: WASTEWATER							
Total Metals by ICP-MS							
Selenium (Se)-Total	<0.0050		0.0050	mg/L	09-OCT-12	10-OCT-12	R2453446
Silicon (Si)-Total	1.91		0.30	mg/L	09-OCT-12	10-OCT-12	R2453446
Silver (Ag)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Sodium (Na)-Total	58.4		0.050	mg/L	09-OCT-12	10-OCT-12	R2453446
Strontium (Sr)-Total	0.179		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	09-OCT-12	10-OCT-12	R2453446
Thorium (Th)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Tin (Sn)-Total	<0.00060		0.00060	mg/L	09-OCT-12	10-OCT-12	R2453446
Titanium (Ti)-Total	0.0012		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Tungsten (W)-Total	<0.0020		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Uranium (U)-Total	0.00412		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Vanadium (V)-Total	<0.0020		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Zinc (Zn)-Total	<0.020		0.020	mg/L	09-OCT-12	10-OCT-12	R2453446
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Turbidity							
Turbidity	0.21		0.10	NTU		29-SEP-12	R2445980
pH							
pH	8.32		0.10	pH units		29-SEP-12	R2446360
L1216768-2 SANIKILUAQ - SANI 4							
Sampled By: SEAN PHILLIPS on 28-SEP-12 @ 09:00							
Matrix: WASTEWATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-OCT-12	R2448472
Toluene	<0.0010		0.0010	mg/L		06-OCT-12	R2448472
Ethyl benzene	<0.00050		0.00050	mg/L		06-OCT-12	R2448472
o-Xylene	<0.00050		0.00050	mg/L		06-OCT-12	R2448472
m+p-Xylenes	<0.00050		0.00050	mg/L		06-OCT-12	R2448472
Xylenes	<0.0015		0.0015	mg/L		06-OCT-12	R2448472
F1 (C6-C10)	<0.10		0.10	mg/L		06-OCT-12	R2448472
Surrogate: 4-Bromofluorobenzene (SS)	105.5		70-130	%		06-OCT-12	R2448472
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		10-OCT-12	
F3-PAH	<0.25		0.25	mg/L		10-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		10-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F3 (C16-C34)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F4 (C34-C50)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
Surrogate: 2-Bromobenzotrifluoride	88.0		65-135	%	29-SEP-12	29-SEP-12	R2446755
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		01-OCT-12	R2447410
Biochemical Oxygen Demand	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448952
BOD Carbonaceous	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448951
Fecal Coliforms	<3		3	MPN/100mL		02-OCT-12	R2448486
Oil and Grease, Total	<2.0		2.0	mg/L	02-OCT-12	02-OCT-12	R2447533
Phenols (4AAP)	<0.0010		0.0010	mg/L	05-OCT-12	05-OCT-12	R2450272
Phosphorus (P)-Total	0.058		0.010	mg/L		04-OCT-12	R2449172

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216768-2 SANIKILUAQ - SANI 4							
Sampled By: SEAN PHILLIPS on 28-SEP-12 @ 09:00							
Matrix: WASTEWATER							
Total Organic Carbon	6.7		1.0	mg/L		05-OCT-12	R2451620
Total Suspended Solids	<5.0		5.0	mg/L		01-OCT-12	R2447372
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Acridine	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Chrysene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluoranthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluorene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Naphthalene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Phenanthrene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Quinoline	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acenaphthene d10	96.1		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acridine d9	94.2		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Chrysene d12	77.5		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Naphthalene d8	88.7		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Phenanthrene d10	95.5		50-150	%	03-OCT-12	09-OCT-12	R2452323
ROU4W total							
Alkalinity							
Alkalinity, Total (as CaCO3)	172		20	mg/L		29-SEP-12	R2446360
Bicarbonate (HCO3)	209		24	mg/L		29-SEP-12	R2446360
Carbonate (CO3)	<12		12	mg/L		29-SEP-12	R2446360
Hydroxide (OH)	<6.8		6.8	mg/L		29-SEP-12	R2446360
Chloride by Ion Chromatography							
Chloride	678		2.5	mg/L		29-SEP-12	R2448095
Conductivity							
Conductivity	2660		20	umhos/cm		29-SEP-12	R2446360
Fluoride by Ion Chromatography							
Fluoride	<0.50	DLM	0.50	mg/L		29-SEP-12	R2448095
Hardness Calculated							
Hardness (as CaCO3)	580		0.30	mg/L		17-OCT-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.25	DLM	0.25	mg/L		29-SEP-12	R2448095
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.35		0.35	mg/L		03-OCT-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.25	DLM	0.25	mg/L		29-SEP-12	R2448095
Sulfate by Ion Chromatography							
Sulfate	163		2.5	mg/L		29-SEP-12	R2448095
TDS calculated							
TDS (Calculated)	1460		5.0	mg/L		17-OCT-12	

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216768-2 SANIKILUAQ - SANI 4							
Sampled By: SEAN PHILLIPS on 28-SEP-12 @ 09:00							
Matrix: WASTEWATER							
Total Metals by ICP-MS							
Aluminum (Al)-Total	<0.020		0.020	mg/L	09-OCT-12	10-OCT-12	R2453446
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Arsenic (As)-Total	0.0013		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Barium (Ba)-Total	0.0171		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Boron (B)-Total	0.186		0.030	mg/L	09-OCT-12	10-OCT-12	R2453446
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	09-OCT-12	10-OCT-12	R2453446
Calcium (Ca)-Total	125		0.20	mg/L	09-OCT-12	10-OCT-12	R2453446
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Copper (Cu)-Total	0.0024		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Iron (Fe)-Total	<0.10		0.10	mg/L	09-OCT-12	10-OCT-12	R2453446
Lead (Pb)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Lithium (Li)-Total	0.0133		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Magnesium (Mg)-Total	65.2		0.050	mg/L	09-OCT-12	10-OCT-12	R2453446
Manganese (Mn)-Total	0.0069		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Molybdenum (Mo)-Total	0.00709		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Phosphorus (P)-Total	<0.50		0.50	mg/L	09-OCT-12	10-OCT-12	R2453446
Potassium (K)-Total	7.78		0.10	mg/L	09-OCT-12	10-OCT-12	R2453446
Rubidium (Rb)-Total	0.00181		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Selenium (Se)-Total	0.0051		0.0050	mg/L	09-OCT-12	10-OCT-12	R2453446
Silicon (Si)-Total	2.10		0.30	mg/L	09-OCT-12	10-OCT-12	R2453446
Silver (Ag)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Sodium (Na)-Total	318	DLA	0.50	mg/L	09-OCT-12	16-OCT-12	R2457073
Strontium (Sr)-Total	0.633		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	09-OCT-12	10-OCT-12	R2453446
Thorium (Th)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Tin (Sn)-Total	<0.00060		0.00060	mg/L	09-OCT-12	10-OCT-12	R2453446
Titanium (Ti)-Total	0.0030		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Tungsten (W)-Total	<0.0020		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Uranium (U)-Total	0.00478		0.00050	mg/L	09-OCT-12	10-OCT-12	R2453446
Vanadium (V)-Total	<0.0020		0.0020	mg/L	09-OCT-12	10-OCT-12	R2453446
Zinc (Zn)-Total	<0.020		0.020	mg/L	09-OCT-12	10-OCT-12	R2453446
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	09-OCT-12	10-OCT-12	R2453446
Turbidity							
Turbidity	0.23		0.10	NTU		29-SEP-12	R2445980
pH							
pH	8.19		0.10	pH units		29-SEP-12	R2446360

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-WP	Water	Alkalinity	APHA 2320B

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B-5 day Incub.-O2 electrode

A sample of water is incubated for 5 days at 20 degrees Celcius. Comparison of dissolved oxygen content at beginning and end of incubation provides a measure of Biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis.

BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B

The sample is incubated for 5 days at 20 degrees Celcius. Comparison of dissolved oxygen content at the beginning and end of incubation provides a measure of biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis. Surface waters have a DL of 1 mg/L. Effluents are diluted according to their history and will have a sample DL of 6 mg/L or greater, depending on the dilutions used.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA SW846 8260B REV 2 SEPT 1994

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

C-TOT-ORG-WP	Water	Total Organic Carbon	APHA 5310 B-INSTRUMENTAL-WP

This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide.

The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC.
TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.

CL-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

EC-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
ETL-SOLIDS-CALC-WP	Water	TDS calculated	CALCULATION
F-IC-WP	Water	Fluoride by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB# 1310-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-WS-WP	Water	F2-F4 PHC method	EPA 3510/8000

This is the determination of the Petroleum Hydrocarbon fractions in water (F2, F3 and F4). A water sample volume of 200 mL in a 250 mL glass amber bottle is shaken with 10 mL hexane for two hours on a wrist action shaker, and then sonicated for 5 minutes. After extraction, the solvent layer is drawn off and analyzed against C10, C16 and C34 standards on a gas chromatograph equipped with a flame ionization detector.

FC-MPN-WP	Water	Fecal Coliform	APHA 9221A-C

The Most Probable Number (MPN) method is based on the Multiple Tube Fermentation technique. The results of examination of replicate tubes and dilutions of a sample are reported after confirmations specific to total coliform, fecal coliform and E. coli are performed. Results are reported in MPN/100 mL for water and MPN/gram for food and solid samples.

IONBALANCE-OP05-WP	Water	Ion Balance Calculation No Reporting	APHA 1030E
MET-T-MS-WP	Water	Total Metals by ICP-MS	U.S. EPA 200.8-T

Total Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the examination of Water and Wastewater Method 3030E and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.

NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

OGG-TOT-WT	Water	Oil and Grease, Total	APHA 5520 B

Sample is extracted with hexane, extract is then evaporated and the residue is weighed to determine total oil and grease.

P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

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

PAH,PANH-WP	Water	Polyaromatic Hydrocarbons (PAHs)	EPA SW 846/8270-GC/MS

Water is spiked with a surrogate spike mix and extracted using solvent extraction techniques. Analysis is performed by GC/MS in the selected ion monitoring (SIM) mode.

PH-WP	Water	pH	APHA 4500H

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066

An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

SO4-IC-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)

Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)

Turbidity in aqueous matrices 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

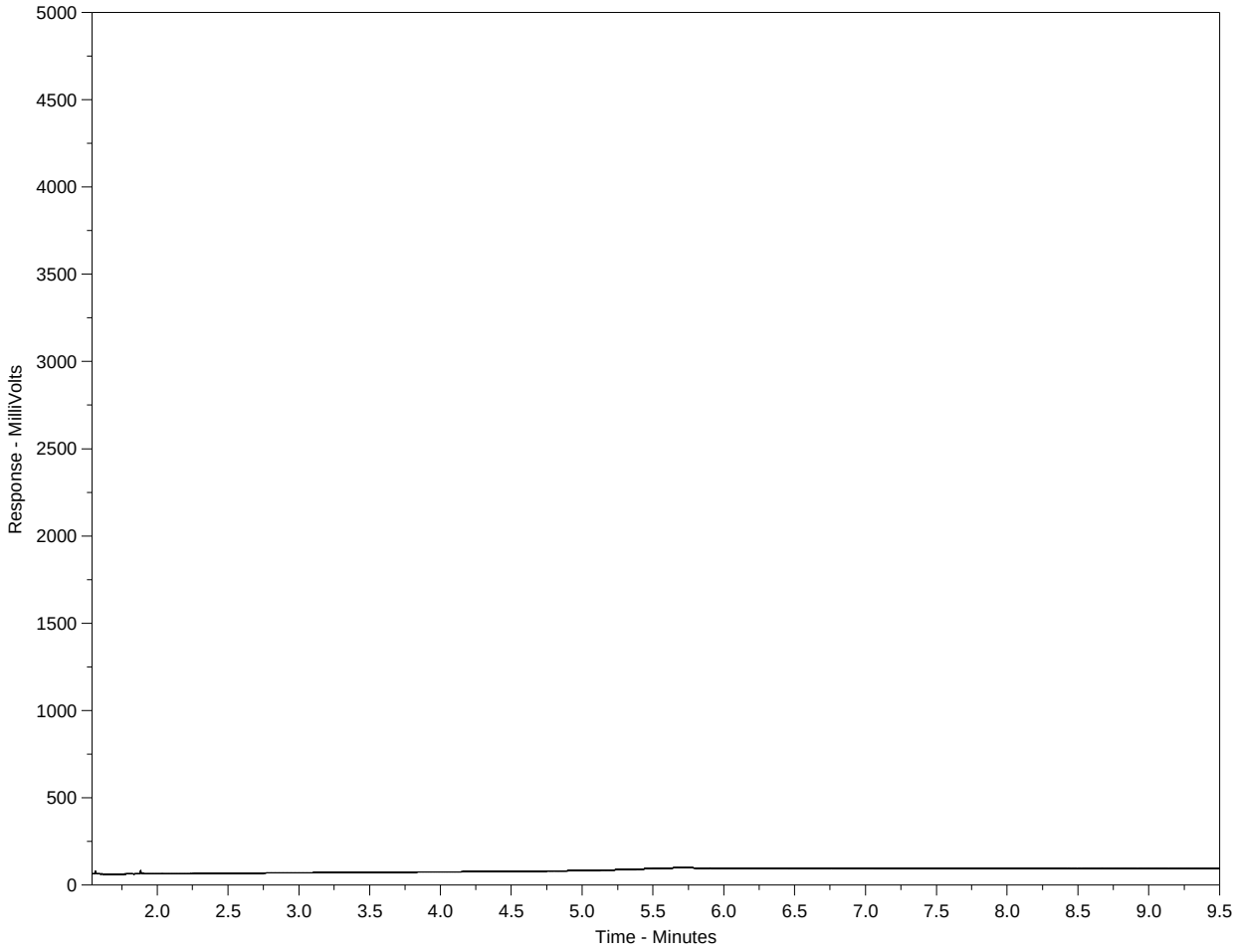
GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
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
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
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: **L1216768-1**
Client ID: **SANIKILUAQ - SANI 2**



<-nC10---------nC16------------------------nC34-----------------nC50------------------------------>
<-------nC11---------------------nC30-->
<----Gasoline-------------> <------------------Heavy Oils-->
|--------------Diesel----------------|

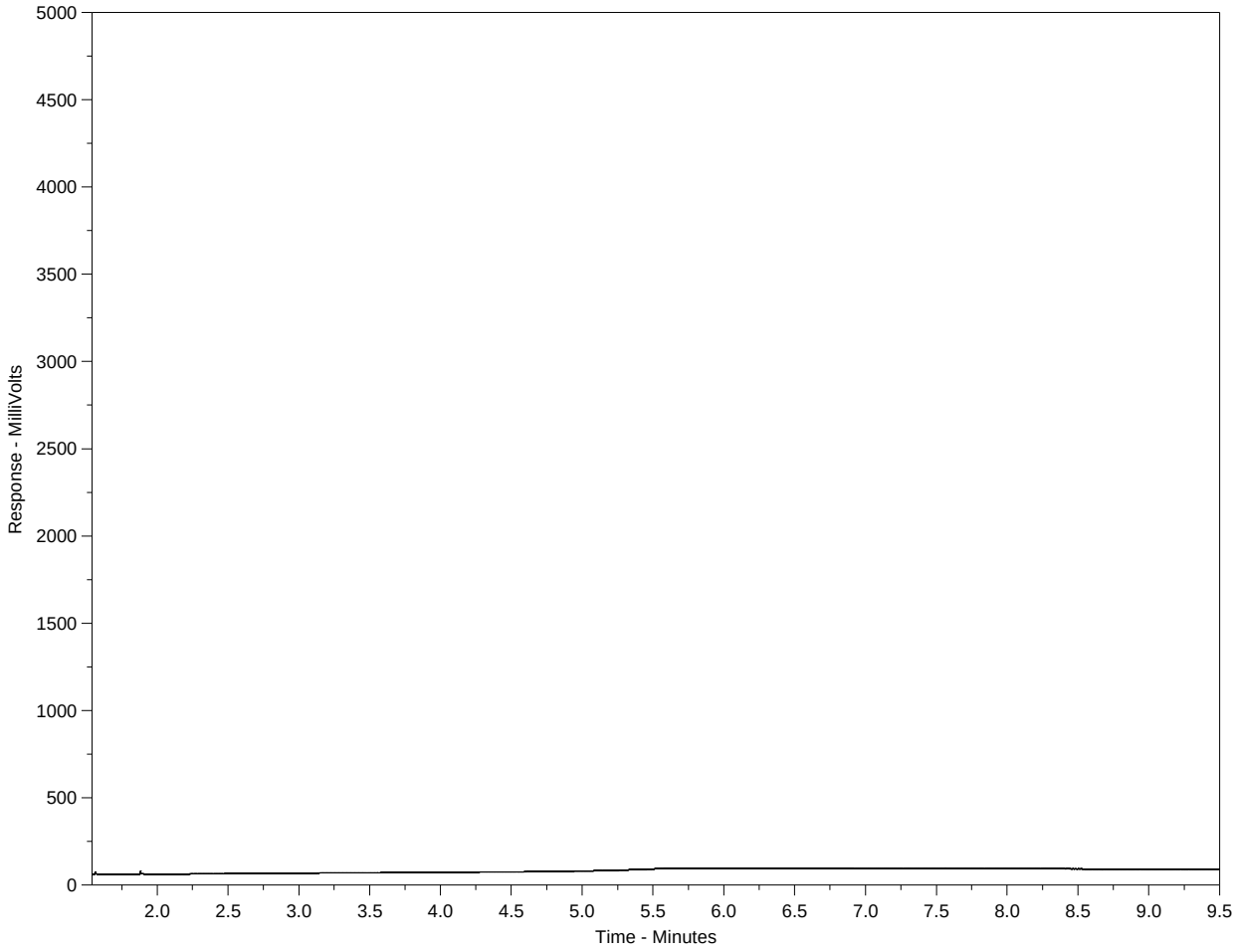
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

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

Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: **L1216768-2**
Client ID: **SANIKILUAQ - SANI 4**



<-nC10---------nC16------------------------nC34-----------------nC50------------------------------>
<-------nC11---------------------nC30--->
<----Gasoline-------------> <------------------Heavy Oils--->
|--------------Diesel----------------|

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

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

Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

ALS Environmental

L1216768-COFC

Form

COC # L1216768 Page ___ of ___

Report To					
Company:	Municipality of SANIKILUAQ	W10375	☐ Standard	☐ Other	
Contact:	ANDRE LARABIE SAO		☐ PDF	☐ Excel	☐ Digital ☐ Fax
Address:	Box 157		Email 1:	sanisao@qiniq.com	
	Sanikiluaq, NU, X0A 0W0		Email 2:	sanirec@qiniq.com	
Phone:	867-266-7900 Fax:		Email 3:	mlusty@gov.nu.ca	
Invoice To	Same as Report ? ☐ Yes ☐ No		**Client / Project Information**		
Hardcopy of Invoice with Report?	☐ Yes ☐ No		Job #:	SANIKILUAQ WWTP	
Company:			PO / AFE:		
Contact:			LSD:		
Address:					
Phone:	Fax:		Quote #:	[redacted]	
Lab Work Order # (lab use only)			**ALS Contact:**	**Sampler:**	

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	BOD-WP	BOD-CBOD-WP	TOC (C-TOT-ORG-WP)	Fecal Coliform (FC-MPN-WP	Ammonia (NH3-COL-WP)	Total Oil & Grease (OGG-TO	Phosphorous, Total	Routine Chem + Metal Scan	TSS (Solids-TOTSUS-WP	Phenols-4AAP-WT	BTX,F1-F4-WP	PAH,PANH-WP	Number of Containers
	Sanikiluaq - Sani 2	28-Sept-12	9:00AM	WW	✓	✓	✓	✓	✓	✓ No bottle	✓	✓	✓	✓	✓	✓	
	Sanikiluaq - Sani 4	28-Sept-12	9:00AM	WW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

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

Bottles Required - 500 ml BOD, 100 ml amber TOC, 125 ml Sterile Bacti, 250 ml Nutrient, 1 L Amber W/M OGG, 1 L Routine, 250 ml Metals, 250ml Phenols

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: Sept 28/12	Time: 7:45	Temperature: 13° °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

GENF 18.01 Front