



Municipality of Sanikiluaq
ATTN: ANDRE LARABIE SAO
PO Box 157
Sanikiluaq NU X0A 0W0

Date Received: 05-NOV-13
Report Date: 14-NOV-13 10:51 (MT)
Version: FINAL

Client Phone: 867-266-7900

Certificate of Analysis

Lab Work Order #: L1387627
Project P.O. #: NOT SUBMITTED
Job Reference: SANIKILUAQ WWTP
C of C Numbers:
Legal Site Desc:

Paul Nicolas
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1387627-1 SANI 2 (WASTE DISPOSAL GROUND - STREAM) Sampled By: MOSES on 04-NOV-13 @ 11:30 Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		08-NOV-13	R2738889
Biochemical Oxygen Demand	<6.0		6.0	mg/L		06-NOV-13	R2738683
Conductivity	605		20	umhos/cm		05-NOV-13	R2734697
Fecal Coliforms	7		3	MPN/100mL		08-NOV-13	R2738542
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	08-NOV-13	08-NOV-13	R2738684
Oil and Grease, Total	<2.0		2.0	mg/L	09-NOV-13	09-NOV-13	R2739034
Phenols (4AAP)	<0.0010		0.0010	mg/L	07-NOV-13	07-NOV-13	R2736884
Phosphorus (P)-Total	<0.010		0.010	mg/L		06-NOV-13	R2735207
Sulfate	53.6		0.50	mg/L		06-NOV-13	R2737154
Total Suspended Solids	<5.0		5.0	mg/L		06-NOV-13	R2735966
pH	8.05		0.10	pH units		05-NOV-13	R2734697
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0070		0.0050	mg/L	08-NOV-13	08-NOV-13	R2738986
Antimony (Sb)-Total	0.00031		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Arsenic (As)-Total	0.00027		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Barium (Ba)-Total	0.0134		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Beryllium (Be)-Total	<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Bismuth (Bi)-Total	<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Boron (B)-Total	0.089		0.010	mg/L	08-NOV-13	08-NOV-13	R2738986
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	08-NOV-13	08-NOV-13	R2738986
Calcium (Ca)-Total	51.6		0.10	mg/L	08-NOV-13	08-NOV-13	R2738986
Cesium (Cs)-Total	<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	08-NOV-13	08-NOV-13	R2738986
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Copper (Cu)-Total	0.00279		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Iron (Fe)-Total	<0.10		0.10	mg/L	08-NOV-13	08-NOV-13	R2738986
Lead (Pb)-Total	<0.000090		0.000090	mg/L	08-NOV-13	08-NOV-13	R2738986
Lithium (Li)-Total	0.0053		0.0020	mg/L	08-NOV-13	08-NOV-13	R2738986
Magnesium (Mg)-Total	20.3		0.010	mg/L	08-NOV-13	08-NOV-13	R2738986
Manganese (Mn)-Total	0.00058		0.00030	mg/L	08-NOV-13	08-NOV-13	R2738986
Molybdenum (Mo)-Total	0.00071		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	08-NOV-13	08-NOV-13	R2738986
Phosphorus (P)-Total	<0.10		0.10	mg/L	08-NOV-13	08-NOV-13	R2738986
Potassium (K)-Total	2.99		0.020	mg/L	08-NOV-13	08-NOV-13	R2738986
Rubidium (Rb)-Total	0.00115		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Selenium (Se)-Total	0.0013		0.0010	mg/L	08-NOV-13	08-NOV-13	R2738986
Silicon (Si)-Total	1.61		0.050	mg/L	08-NOV-13	08-NOV-13	R2738986
Silver (Ag)-Total	<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Sodium (Na)-Total	48.0	DLA	3.0	mg/L	08-NOV-13	13-NOV-13	R2741010
Strontium (Sr)-Total	0.145		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Thallium (Tl)-Total	<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Thorium (Th)-Total	<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Tin (Sn)-Total	<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Titanium (Ti)-Total	0.00158		0.00050	mg/L	08-NOV-13	08-NOV-13	R2738986
Tungsten (W)-Total	<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Uranium (U)-Total	0.00394		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Vanadium (V)-Total	<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Zinc (Zn)-Total	<0.0020		0.0020	mg/L	08-NOV-13	08-NOV-13	R2738986
Zirconium (Zr)-Total	<0.00040		0.00040	mg/L	08-NOV-13	08-NOV-13	R2738986

* 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
L1387627-2 SANI 4 (LAGOON - STREAM)								
Sampled By: MOSES on 04-NOV-13 @ 12:00								
Matrix: WATER								
Miscellaneous Parameters								
Ammonia, Total (as N)		0.019		0.010	mg/L		08-NOV-13	R2738889
Biochemical Oxygen Demand		<6.0		6.0	mg/L		06-NOV-13	R2738683
Conductivity		2540		20	umhos/cm		05-NOV-13	R2734697
Fecal Coliforms		<3		3	MPN/100mL		08-NOV-13	R2738542
Mercury (Hg)-Total		<0.000020		0.000020	mg/L	08-NOV-13	08-NOV-13	R2738684
Oil and Grease, Total		<2.0		2.0	mg/L	09-NOV-13	09-NOV-13	R2739034
Phenols (4AAP)		<0.0010		0.0010	mg/L	07-NOV-13	07-NOV-13	R2736884
Phosphorus (P)-Total		0.063		0.010	mg/L		06-NOV-13	R2735207
Sulfate		158		2.5	mg/L		06-NOV-13	R2737154
Total Suspended Solids		<5.0		5.0	mg/L		06-NOV-13	R2735966
pH		7.93		0.10	pH units		05-NOV-13	R2734697
Total Metals by ICP-MS								
Aluminum (Al)-Total		<0.0050		0.0050	mg/L	08-NOV-13	08-NOV-13	R2738986
Antimony (Sb)-Total		<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Arsenic (As)-Total		0.00227		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Barium (Ba)-Total		0.0151		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Beryllium (Be)-Total		<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Bismuth (Bi)-Total		<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Boron (B)-Total		0.099		0.010	mg/L	08-NOV-13	08-NOV-13	R2738986
Cadmium (Cd)-Total		0.000019		0.000010	mg/L	08-NOV-13	08-NOV-13	R2738986
Calcium (Ca)-Total		102	DLA	10	mg/L	08-NOV-13	13-NOV-13	R2741010
Cesium (Cs)-Total		<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Chromium (Cr)-Total		<0.0010		0.0010	mg/L	08-NOV-13	08-NOV-13	R2738986
Cobalt (Co)-Total		<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Copper (Cu)-Total		0.00189		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Iron (Fe)-Total		<0.10		0.10	mg/L	08-NOV-13	08-NOV-13	R2738986
Lead (Pb)-Total		<0.000090		0.000090	mg/L	08-NOV-13	08-NOV-13	R2738986
Lithium (Li)-Total		0.0105		0.0020	mg/L	08-NOV-13	08-NOV-13	R2738986
Magnesium (Mg)-Total		53.1		0.010	mg/L	08-NOV-13	08-NOV-13	R2738986
Manganese (Mn)-Total		0.00532		0.00030	mg/L	08-NOV-13	08-NOV-13	R2738986
Molybdenum (Mo)-Total		0.00071		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Nickel (Ni)-Total		<0.0020		0.0020	mg/L	08-NOV-13	08-NOV-13	R2738986
Phosphorus (P)-Total		<0.10		0.10	mg/L	08-NOV-13	08-NOV-13	R2738986
Potassium (K)-Total		7.47		0.020	mg/L	08-NOV-13	08-NOV-13	R2738986
Rubidium (Rb)-Total		0.00193		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Selenium (Se)-Total		0.0018		0.0010	mg/L	08-NOV-13	08-NOV-13	R2738986
Silicon (Si)-Total		1.88		0.050	mg/L	08-NOV-13	08-NOV-13	R2738986
Silver (Ag)-Total		<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Sodium (Na)-Total		318	DLA	3.0	mg/L	08-NOV-13	13-NOV-13	R2741010
Strontium (Sr)-Total		0.574		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Tellurium (Te)-Total		<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Thallium (Tl)-Total		<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Thorium (Th)-Total		<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Tin (Sn)-Total		<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Titanium (Ti)-Total		0.00409		0.00050	mg/L	08-NOV-13	08-NOV-13	R2738986
Tungsten (W)-Total		<0.00010		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Uranium (U)-Total		0.00376		0.00010	mg/L	08-NOV-13	08-NOV-13	R2738986
Vanadium (V)-Total		<0.00020		0.00020	mg/L	08-NOV-13	08-NOV-13	R2738986
Zinc (Zn)-Total		<0.0020		0.0020	mg/L	08-NOV-13	08-NOV-13	R2738986
Zirconium (Zr)-Total		<0.00040		0.00040	mg/L	08-NOV-13	08-NOV-13	R2738986

* 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
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**
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.			
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.			
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.			
HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0
Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.			
MET-T-L-MS-WP	Water	Total Metals by ICP-MS	U.S. EPA 200.8-TL
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 analysis of metals by inductively coupled-mass spectrometry.			
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.			
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.			
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.			

** 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
----------------------------	---------------------

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
WT		ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA	
WP		ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, 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 ww - 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.



L1387627-COFC

COC #

Page of

[illegible]