

Bijaya Adhikari

From: Stephen Wylie <hamlet_ceo@northwestel.net>
Sent: June 15, 2018 4:13 PM
To: Bijaya Adhikari
Subject: RE: N7L3-1531 HofSachs 2017 AR-add info request
Attachments: Taiga Lab Results.pdf; ALS Certificate for Water.pdf

Good afternoon Bijaya,

I have read your request for additional information. Here is what I have found:

1. Please see reports attached.
2. No updates and/or revisions.

I hope this helps.

Thank you,

Stephen Wylie, SAO
Sachs Harbour

From: Bijaya Adhikari [mailto:adhikarib@inuvwb.ca]
Sent: Wednesday, June 13, 2018 10:14 AM
To: Stephen Wylie
Cc: Lloyd Gruben; Mardy Semmler; Freda Wilson
Subject: N7L3-1531 HofSachs 2017 AR-add info request

Good Morning Stephen,

Please find attached a correspondence regarding municipal water licence N7L3-1531 Hamlet of Sachs Harbour 2017 Annual Report – additional information Request.

The original to the Mayor will follow in the mail.

Sincerely,

Bijaya

*Bijaya Adhikari, PhD
Science and Regulatory Coordinator
Inuvialuit Water Board
P.O. Box 2531, Inuvik, NT X0E 0T0
Tel: (867) 678-8610
Fax: (867) 678-2943*



Taiga Environmental Laboratory
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9
Tel: (867)-767-9235 Fax: (867)-920-8740

Taiga Batch No.:
170943

- FINAL REPORT -

Prepared For: Hamlet of Sachs Harbour

Address: P.O. Box 90
Sachs Harbour, NT
XOE 0Z0

Attn: Adella Carpenter

Facsimile: (867) 690-4802

Final report has been reviewed and approved by:

Glen Hudy
Quality Assurance Officer

NOTES:

- Test methods and data are validated by the laboratory's Quality Assurance Program. Taiga Environmental Laboratory is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) to ISO/IEC 17025 as a testing laboratory for specific tests registered with CALA.
- Routine methods are based on recognized procedures from sources such as
 - Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
 - Environment Canada
 - USEPA
- Samples shall be kept for thirty (30) days after the final report is issued. All microbiological samples shall be disposed of immediately upon completion of analysis to minimize biohazardous risks to laboratory personnel. Please contact the laboratory if you have any special requirements.
- Final results are based on the specific tests at the time of analysis and do not represent the conditions during sampling.

Report Date: Thursday, September 28, 2017

Print Date: Thursday, September 28, 2017

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Taiga Batch No.:
170943

- CERTIFICATE OF ANALYSIS -

Client Sample ID: 1531-2

Taiga Sample ID: 001

Client Project: Sept. Sampling
Sample Type: Water
Received Date: 18-Sep-17
Sampling Date: 14-Sep-17
Sampling Time: 14:30
Location: 1531-2
Report Status: Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<u>Inorganics - Nutrients</u>						
Biochemical Oxygen Demand		2	mg/L		SM5210:B	105
CBOD		2	mg/L		SM5210:B	105
<u>Inorganics - Physicals</u>						
pH	7.57		pH units	18-Sep-17	SM4500-H:B	
Solids, Total Suspended	21	3	mg/L	22-Sep-17	SM2540:D	
<u>Microbiology</u>						
Coliforms, Fecal		1	CFU/100mL		SM9222:D	105
<u>Organics</u>						
Hexane Extractable Material		2.0	mg/L		EPA1664A	103

Report Date: Thursday, September 28, 2017
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Taiga Batch No.:
170943

- CERTIFICATE OF ANALYSIS -

Client Sample ID: 1531-3

Taiga Sample ID: 002

Client Project: Sept. Sampling
Sample Type: Water
Received Date: 18-Sep-17
Sampling Date: 14-Sep-17
Sampling Time: 11:44
Location: 1531-3
Report Status: Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<u>Inorganics - Physicals</u>						
pH	7.55		pH units	18-Sep-17	SM4500-H:B	
Solids, Total Dissolved	3330	10	mg/L	22-Sep-17	SM2540:C	
<u>Trace Metals, Total</u>						
Aluminum		0.6	µg/L		EPA200.8	16
Antimony		0.1	µg/L		EPA200.8	16
Arsenic		0.2	µg/L		EPA200.8	16
Barium		0.1	µg/L		EPA200.8	16
Beryllium		0.1	µg/L		EPA200.8	16
Cadmium		0.04	µg/L		EPA200.8	16
Cesium		0.1	µg/L		EPA200.8	16
Chromium		0.1	µg/L		EPA200.8	16
Cobalt		0.1	µg/L		EPA200.8	16
Copper		0.2	µg/L		EPA200.8	16
Iron		5	µg/L		EPA200.8	16
Lead		0.1	µg/L		EPA200.8	16
Lithium		0.2	µg/L		EPA200.8	16

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Taiga Batch No.:
170943

- CERTIFICATE OF ANALYSIS -

Client Sample ID: 1531-3

Taiga Sample ID: 002

Manganese	0.1	µg/L	EPA200.8	16
Molybdenum	0.1	µg/L	EPA200.8	16
Nickel	0.1	µg/L	EPA200.8	16
Rubidium	0.1	µg/L	EPA200.8	16
Selenium	0.3	µg/L	EPA200.8	16
Silver	0.1	µg/L	EPA200.8	16
Strontium	0.1	µg/L	EPA200.8	16
Thallium	0.1	µg/L	EPA200.8	16
Titanium	0.1	µg/L	EPA200.8	16
Uranium	0.1	µg/L	EPA200.8	16
Vanadium	0.1	µg/L	EPA200.8	16
Zinc	0.4	µg/L	EPA200.8	16

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Taiga Batch No.:
170943

- CERTIFICATE OF ANALYSIS -

Client Sample ID: 1531-3

Taiga Sample ID: 002

- DATA QUALIFIERS -

Data Qualifier Descriptions:

- 103** *Bottle received empty, analysis not possible*
- 105** *Samples received past hold time; analysis not possible.*
- 16** *Test requested but no sample bottle received*

*** Taiga analytical methods are based on the following standard analytical methods**

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

ReportDate: Thursday, September 28, 2017

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Cash Clients
ATTN: Adella Carpenter
Hamlet of Sachs Harbour
PO Box 90
Sachs Harbour NT X0E 0Z0

Date Received: 24-AUG-17
Report Date: 20-NOV-17 14:30 (MT)
Version: FINAL

Client Phone: 867-690-4351

Certificate of Analysis

Lab Work Order #: L1980626
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 15-583973
Legal Site Desc:

Rick Zolkiewski
General Manager

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

ADDRESS: 314 Old Airport Road, Unit 116, Yellowknife, NT X1A 3T3 Canada | Phone: +1 867 873 5593 |
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Environmental 

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1980626-1 grab 17-AUG-17 14.00 SACHS HARBOUR- HAMLET OFFICE TAP				
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)	<5.0			
	Total Suspended Solids (mg/L)	<3.0			
	Turbidity (NTU)	0.39			
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	132			
	Bicarbonate (HCO3) (mg/L)	161			
	Carbonate (CO3) (mg/L)	<5.0			
	Chloride (Cl) (mg/L)	101			
	Conductivity (EC) (uS/cm)	665			
	Fluoride (F) (mg/L)	0.054			
	Hardness (as CaCO3) (mg/L)	302			
	Hydroxide (OH) (mg/L)	<5.0			
	Ion Balance (%)	102			
	Nitrate and Nitrite (as N) (mg/L)	<0.050			
	Nitrate (as N) (mg/L)	<0.020			
	Nitrite (as N) (mg/L)	<0.010			
	pH (pH)	8.28			
	TDS (Calculated) (mg/L)	357			
	Sulfate (SO4) (mg/L)	61.0			
Cyanides	Cyanide, Total (mg/L)	<0.0050			
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	3.1			
	Total Organic Carbon (mg/L)	3.0			
Total Metals	Aluminum (Al)-Total (mg/L)	0.0124			
	Antimony (Sb)-Total (mg/L)	<0.00010			
	Arsenic (As)-Total (mg/L)	0.00045			
	Barium (Ba)-Total (mg/L)	0.0708			
	Beryllium (Be)-Total (mg/L)	<0.00010			
	Bismuth (Bi)-Total (mg/L)	<0.000050			
	Boron (B)-Total (mg/L)	0.023			
	Cadmium (Cd)-Total (mg/L)	0.0000071			
	Calcium (Ca)-Total (mg/L)	61.4			
	Cesium (Cs)-Total (mg/L)	<0.000010			
	Chromium (Cr)-Total (mg/L)	<0.00010			
	Cobalt (Co)-Total (mg/L)	<0.00010			
	Copper (Cu)-Total (mg/L)	0.112			
	Iron (Fe)-Total (mg/L)	0.012			
	Lead (Pb)-Total (mg/L)	0.000730			

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1980626-1 grab 17-AUG-17 14:00 SACHS HARBOUR- HAMLET OFFICE TAP			
Grouping	Analyte				
WATER					
Total Metals	Lithium (Li)-Total (mg/L)	0.0101			
	Magnesium (Mg)-Total (mg/L)	37.6			
	Manganese (Mn)-Total (mg/L)	0.00767			
	Mercury (Hg)-Total (mg/L)	<0.0000050			
	Molybdenum (Mo)-Total (mg/L)	0.000547			
	Nickel (Ni)-Total (mg/L)	0.00106			
	Phosphorus (P)-Total (mg/L)	<0.050			
	Potassium (K)-Total (mg/L)	1.64			
	Rubidium (Rb)-Total (mg/L)	0.00034			
	Selenium (Se)-Total (mg/L)	0.000064			
	Silicon (Si)-Total (mg/L)	0.56			
	Silver (Ag)-Total (mg/L)	0.000014			
	Sodium (Na)-Total (mg/L)	17.2			
	Strontium (Sr)-Total (mg/L)	0.136			
	Sulfur (S)-Total (mg/L)	21.7			
	Tellurium (Te)-Total (mg/L)	<0.00020			
	Thallium (Tl)-Total (mg/L)	<0.000010			
	Thorium (Th)-Total (mg/L)	<0.00010			
	Tin (Sn)-Total (mg/L)	0.00010			
	Titanium (Ti)-Total (mg/L)	<0.00030			
Tungsten (W)-Total (mg/L)	<0.00010				
Uranium (U)-Total (mg/L)	0.000402				
Vanadium (V)-Total (mg/L)	<0.00050				
Zinc (Zn)-Total (mg/L)	0.0125				
Zirconium (Zr)-Total (mg/L)	<0.000060				
Dissolved Metals	Dissolved Metals Filtration Location	LAB			
	Calcium (Ca)-Dissolved (mg/L)	54.9			
	Magnesium (Mg)-Dissolved (mg/L)	40.0			
	Potassium (K)-Dissolved (mg/L)	1.71			
	Sodium (Na)-Dissolved (mg/L)	19.5			
Volatile Organic Compounds	Bromodichloromethane (mg/L)	0.0155			
	Bromoform (mg/L)	0.0148			
	Dibromochloromethane (mg/L)	0.0249			
	Chloroform (mg/L)	0.0087			
	Total THMs (mg/L)	0.0639			
	Surrogate: 4-Bromofluorobenzene (%)	96.9			
Surrogate: 3,4-Dichlorotoluene (%)	97.2				

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1980626-1 grab 17-AUG-17 14:00 SACHS HARBOUR- HAMLET OFFICE TAP			
Grouping	Analyte				
WATER					
Volatle Organic Compounds	Surrogate: 1,4-Difluorobenzene (%)	114.6			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
C-DIS-ORG-CL	Water	Dissolved Organic Carbon	APHA 5310 B-Instrumental
<p>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.</p> <p>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.</p>			
C-TOT-ORG-CL	Water	Total Organic Carbon	APHA 5310 B-Instrumental
<p>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.</p> <p>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.</p>			
CL-IC-N-CL	Water	Chloride in Water by IC	EPA 300.1 (mod)
<p>Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.</p>			
CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002
<p>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 colorimetric 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.</p>			
COLOUR-TRUE-CL	Water	Colour (True) by Spectrometer	APHA 2120 Color
<p>True Colour is measured spectrophotometrically by comparison to platinum-cobalt standards using the single wavelength method (450 - 465 nm) after filtration of sample through a 0.45 um filter. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.</p>			
F-IC-N-CL	Water	Fluoride in Water by IC	EPA 300.1 (mod)
<p>Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.</p>			
HG-T-CVAA-CL	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)
<p>Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.</p>			
IONBALANCE-CL	Water	Ion Balance Calculation	APHA 1030E
MET-DIS-ICP-CL	Water	Dissolved Metals by ICPOES	APHA 3030B/EPA 6010B
<p>*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 (APHA Method 3030B) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).</p>			
MET-T-CCMS-CL	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
<p>Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.</p> <p>Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.</p>			
N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)
<p>Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.</p>			
NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)
<p>Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.</p>			
PH/EC/ALK-CL	Water	pH, Conductivity and Total Alkalinity	APHA 4500H,2510,2320
<p>All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed) pH measurement is determined from the activity of the hydrogen ions using a hydrogen electrode and a reference electrode. Alkalinity measurement is based on the sample's capacity to neutralize acid</p>			

Reference Information

Conductivity measurement is based on the sample's capacity to convey an electric current

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

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

THM-PT-MS-CL Water Trihalomethanes SW 846 8260-GC-MS

TSS-CL Water Total Suspended Solids APHA 2540 D-Gravimetric

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, and by drying the filter at 104 deg. C.

TURBIDITY-CL Water Turbidity APHA 2130 B-Nephelometer

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
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

15-583973

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.