

From: [Erica Janes](#)
To: [Permits](#)
Subject: FW: CARO Analytical Services OTHER - Work Order: 7082675, Project: Sewage Lagoon (Approval to Decant Sewage Lagoon Cell #3)
Date: September 15, 2017 9:13:51 AM
Attachments: [7082675_1_RPT_CARO-M0_2017_09_11_1406.pdf](#)
Importance: High

Please post email and pdf to MV2009L3-0025 – Ft Liard – 5 Reports and Studies / Operations and Notifications – Lab results and Inspector approval of Cell 3 decant – Sep12-17

From: Wendy Bidwell [mailto:Wendy_Bidwell@gov.nt.ca]
Sent: Tuesday, September 12, 2017 10:02 AM
To: Manager Works and Services <mws@fortliard.com>
Cc: Carl Lafferty <Carl_Lafferty@gov.nt.ca>; Nahum Lee <Nahum_Lee@gov.nt.ca>; Heather Scott <heather.scott@mvlwb.com>; Troy Ellsworth <Troy_Ellsworth@gov.nt.ca>; Erica Janes <ejanes@mvlwb.com>
Subject: RE: CARO Analytical Services OTHER - Work Order: 7082675, Project: Sewage Lagoon (Approval to Decant Sewage Lagoon Cell #3)
Importance: High

Hi Alan,

Thanks for sending the pre-decant results for SNP station 1478-9 (attached). It appears only TSS results exceeded licence EQC this time around (EQC=**30** mg/l ; Results=**74** mg/L). Due to the Hamlet's upcoming scheduled desludge of Cell #3-and the requirement to draw down liquids prior to this event-in order to correct high TSS and BOD levels as prescribed by Dillon Consulting Ltd, I approve decant of Cell #3.

As we discussed this morning, I am in the process of drafting an SNP change request letter to the Board to amend sampling requirements for SNP station 1478-6 & 1478-9. For the time being and until the Board approves the requested changes, please collect a sample on the last day of decant at station 1478-6 when adequate flow will be available. As you noted it is difficult to collect a sample at this site (roadside ditch) on the first day of decant until there is increased flow due to decant operations. I will work with the Board to determine sampling requirements at this site that will produce the most accurate results and suitable monitoring, but at the same time not make sampling too onerous and logistically challenging for the Hamlet. As per station 1478-9 (Sewage Lagoon Cell #3), the Hamlet does not need to collect a sample at this station on the last day of decant as the sample has questionable usefulness, and would only incur more costs to the Hamlet. If you have any questions as to what we discussed earlier, please don't hesitate to contact me.

Please keep both Nahum and I posted on progress and completion of decant operations.

Regards,

Wendy

Mársi | Kinanaskomitin | Thank you | Merci | Hǵı' | Quana | Qujannamiik | Quyanainni | Máhsı | Máhsı | Mahsi
Wendy Bidwell

Water Resource Officer
South Slave Region
Department of Environment and Natural Resources
Government of the Northwest Territories

Highway #5
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From: Manager Works and Services [<mailto:mws@fortliard.com>]
Sent: Monday, September 11, 2017 4:43 PM
To: Wendy Bidwell
Subject: FW: CARO Analytical Services OTHER - Work Order: 7082675, Project: Sewage Lagoon

Good afternoon, Wendy,

Please find attached the test results from 1478-9, the waste water sample from lagoon #3. I would like to begin the decant operation first thing Tuesday morning. I will call you to discuss.

Alan

Alan Harris
Manager Municipal Operations
Hamlet of Fort Liard
867 770 4104 ext. 103
Fax: 867 770 4004
Cell: 867 445 4000
mws@fortliard.com

From: reports@caro.ca [<mailto:reports@caro.ca>]
Sent: Monday, September 11, 2017 4:00 PM
To: Manager Works and Services <mws@fortliard.com>
Subject: CARO Analytical Services OTHER - Work Order: 7082675, Project: Sewage Lagoon

Dear Alan Harris: Thank you for using CARO! Please find your document(s) attached (Project Info: Sewage Lagoon 3). If you have any questions, please contact Sarah Cunningham-

Fleming, Dipl T, call us directly, or simply reply to this email.

It is our goal at CARO to deliver complete peace of mind and exceed your expectations for service and quality. Please visit caro.ca/feedback to let us know how we are doing!

We are always working on becoming the best laboratory that we can be at CARO. This summer, CARO is the *only* laboratory in Canada offering Soil Vapour analysis with a guarantee through the busiest sampling time of year. For tips on vapour sample collection and to learn more about our summer vapour guarantee, [click here](#). For other exciting developments, please visit [CARO's News Blog](#).

Thank you and have a great day,
Team CARO

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Caring About Results, Obviously.

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CERTIFICATE OF ANALYSIS

REPORTED TO Fort Liard, Hamlet of
174 Valley Main Street
Fort Liard, NT X0G 0A0

TEL (867) 770-4104
FAX (867) 770-4004

ATTENTION Alan Harris

WORK ORDER 7082675

PO NUMBER 4831

RECEIVED / TEMP 2017-08-30 10:00 / 16°C

PROJECT Sewage Lagoon

REPORTED 2017-09-11

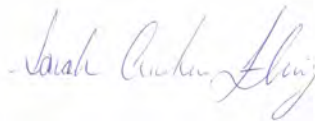
PROJECT INFO Sewage Lagoon 3

COC NUMBER 06344

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.



Authorized By:

Sarah Cunningham-Fleming, Dipl T
Laboratory Coordinator

If you have any questions or concerns, please contact me at scunningham-fleming@caro.ca

Locations:

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Richmond, BC V6V 2K9
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REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7082675
2017-09-11

Analysis Description	Method Reference	Technique	Location
Ammonia, Total in Water	APHA 4500-NH3 D*	Ion Selective Electrode	Edmonton
Biochemical Oxygen Demand in Water	APHA 5210 B	Dissolved Oxygen Meter	Edmonton
Biochemical Oxygen Demand, Carbonaceous in Water	APHA 5210 B	Dissolved Oxygen Meter	Edmonton
Coliforms, Fecal (Q-Tray) in Water	APHA 9223 B*	Most Probable Number / Enzyme Substrate Endo Agar	Edmonton
Conductivity in Water	APHA 2510 B	Conductivity Meter	Edmonton
Hardness (as CaCO3) in Water	APHA 2340 B*	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Estimated)	N/A
pH in Water	APHA 4500-H+ B	Electrometry	Edmonton
Solids, Total Dissolved in Water	APHA 2540 C*	Gravimetry (Dried at 103-105C)	Edmonton
Solids, Total Suspended in Water	APHA 2540 D*	Gravimetry (Dried at 103-105C)	Edmonton
Total Metals by ICPMS in Water	APHA 3030 E* / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Method Reference Descriptions:

APHA Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation
 EPA United States Environmental Protection Agency Test Methods

Glossary of Terms:

MRL Method Reporting Limit
 < Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
 mg/L Milligrams per litre
 MPN/100 mL Most Probable Number per 100 millilitres
 pH units pH < 7 = acidic, pH > 7 = basic
 µS/cm Microsiemens per centimetre

SAMPLE ANALYTICAL DATA

REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7082675
2017-09-11

Analyte	Result / Recovery	MRL / Limits	Units	Prepared	Analyzed	Notes
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Sample ID: Lagoon 3 1478-9 (7082675-01) [Water] Sampled: 2017-08-29 10:00

General Parameters

Ammonia, Total (as N)	4.71	0.050	mg/L	N/A	2017-08-31	
BOD, 5-day	25.5	2.0	mg/L	2017-08-30	2017-09-04	
BOD, 5-day Carbonaceous	24.2	2.0	mg/L	2017-08-30	2017-09-04	
Conductivity (EC)	1660	2.0	µS/cm	N/A	2017-09-02	
pH	9.00	0.10	pH units	N/A	2017-09-02	HT2
Solids, Total Dissolved	594	10	mg/L	N/A	2017-09-01	
Solids, Total Suspended	74.0	2.0	mg/L	2017-09-01	2017-09-02	

Calculated Parameters

Hardness, Total (as CaCO3)	166	0.500	mg/L	N/A	N/A	
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Total Metals

Aluminum, total	0.0955	0.0050	mg/L	2017-09-06	2017-09-06	
Antimony, total	0.00033	0.00020	mg/L	2017-09-06	2017-09-06	
Arsenic, total	0.00324	0.00050	mg/L	2017-09-06	2017-09-06	
Barium, total	0.0459	0.0050	mg/L	2017-09-06	2017-09-06	
Beryllium, total	< 0.00010	0.00010	mg/L	2017-09-06	2017-09-06	
Bismuth, total	0.00027	0.00010	mg/L	2017-09-06	2017-09-06	
Boron, total	0.255	0.0050	mg/L	2017-09-06	2017-09-06	
Cadmium, total	0.000021	0.000010	mg/L	2017-09-06	2017-09-06	
Calcium, total	41.5	0.20	mg/L	2017-09-06	2017-09-06	
Chromium, total	< 0.00050	0.00050	mg/L	2017-09-06	2017-09-06	
Cobalt, total	0.00094	0.00010	mg/L	2017-09-06	2017-09-06	
Copper, total	0.0128	0.00040	mg/L	2017-09-06	2017-09-06	
Iron, total	0.431	0.010	mg/L	2017-09-06	2017-09-06	
Lead, total	< 0.00020	0.00020	mg/L	2017-09-06	2017-09-06	
Lithium, total	0.0157	0.00010	mg/L	2017-09-06	2017-09-06	
Magnesium, total	15.2	0.010	mg/L	2017-09-06	2017-09-06	
Manganese, total	0.127	0.00020	mg/L	2017-09-06	2017-09-06	
Molybdenum, total	0.00107	0.00010	mg/L	2017-09-06	2017-09-06	
Nickel, total	0.00555	0.00040	mg/L	2017-09-06	2017-09-06	
Phosphorus, total	6.40	0.050	mg/L	2017-09-06	2017-09-06	
Potassium, total	28.9	0.10	mg/L	2017-09-06	2017-09-06	
Selenium, total	< 0.00050	0.00050	mg/L	2017-09-06	2017-09-06	
Silicon, total	5.6	1.0	mg/L	2017-09-06	2017-09-06	
Silver, total	< 0.000050	0.000050	mg/L	2017-09-06	2017-09-06	
Sodium, total	153	0.10	mg/L	2017-09-06	2017-09-06	
Strontium, total	0.118	0.0010	mg/L	2017-09-06	2017-09-06	
Sulfur, total	10.4	3.0	mg/L	2017-09-06	2017-09-06	
Tellurium, total	< 0.00050	0.00050	mg/L	2017-09-06	2017-09-06	
Thallium, total	< 0.000020	0.000020	mg/L	2017-09-06	2017-09-06	
Thorium, total	< 0.00010	0.00010	mg/L	2017-09-06	2017-09-06	
Tin, total	0.00026	0.00020	mg/L	2017-09-06	2017-09-06	
Titanium, total	< 0.0050	0.0050	mg/L	2017-09-06	2017-09-06	
Uranium, total	0.000603	0.000020	mg/L	2017-09-06	2017-09-06	
Vanadium, total	< 0.0010	0.0010	mg/L	2017-09-06	2017-09-06	

REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7082675
2017-09-11

Analyte	Result / Recovery	MRL / Limits	Units	Prepared	Analyzed	Notes
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Sample ID: Lagoon 3 1478-9 (7082675-01) [Water] Sampled: 2017-08-29 10:00, Continued

Total Metals, Continued

Zinc, total	0.0096	0.0040	mg/L	2017-09-06	2017-09-06	
Zirconium, total	0.00047	0.00010	mg/L	2017-09-06	2017-09-06	

Microbiological Parameters

Coliforms, Fecal (Q-Tray)	< 1.0	1.0	MPN/100 mL	2017-08-30	2017-08-31	
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Sample / Analysis Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7082675 2017-09-11

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk):** Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup):** Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS):** A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM):** A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
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General Parameters, Batch B7H2232

Blank (B7H2232-BLK1)			Prepared: 2017-08-30, Analyzed: 2017-09-04						
BOD, 5-day	< 2.0	2.0 mg/L							
Blank (B7H2232-BLK2)			Prepared: 2017-08-30, Analyzed: 2017-09-04						
BOD, 5-day	< 2.0	2.0 mg/L							
LCS (B7H2232-BS1)			Prepared: 2017-08-30, Analyzed: 2017-09-04						
BOD, 5-day	177	2.0 mg/L	198		90	85-115			

General Parameters, Batch B7H2233

Blank (B7H2233-BLK1)			Prepared: 2017-08-30, Analyzed: 2017-09-04						
BOD, 5-day Carbonaceous	< 1.3	2.0 mg/L							
Blank (B7H2233-BLK2)			Prepared: 2017-08-30, Analyzed: 2017-09-04						
BOD, 5-day Carbonaceous	< 1.3	2.0 mg/L							
LCS (B7H2233-BS1)			Prepared: 2017-08-30, Analyzed: 2017-09-04						
BOD, 5-day Carbonaceous	190	2.0 mg/L	198		96	85-115			

General Parameters, Batch B7H2293

Blank (B7H2293-BLK1)			Prepared: 2017-09-01, Analyzed: 2017-09-01						
Solids, Total Dissolved	< 20	10 mg/L							
Duplicate (B7H2293-DUP1)			Prepared: 2017-09-01, Analyzed: 2017-09-01						
Solids, Total Dissolved	592	10 mg/L		594			< 1	5	
Reference (B7H2293-SRM1)			Prepared: 2017-09-01, Analyzed: 2017-09-01						
Solids, Total Dissolved	248	10 mg/L	240		103	85-115			

General Parameters, Batch B7H2322

APPENDIX 1: QUALITY CONTROL DATA

REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7082675
2017-09-11

Analyte	Result	MRL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
General Parameters, Batch B7H2322, Continued									
Blank (B7H2322-BLK1)			Prepared: 2017-08-31, Analyzed: 2017-08-31						
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B7H2322-BS1)			Prepared: 2017-08-31, Analyzed: 2017-08-31						
Ammonia, Total (as N)	0.204	0.050 mg/L	0.200		102	94-113			
General Parameters, Batch B7I0042									
Blank (B7I0042-BLK1)			Prepared: 2017-09-01, Analyzed: 2017-09-02						
Solids, Total Suspended	< 3.3	2.0 mg/L							
Blank (B7I0042-BLK2)			Prepared: 2017-09-01, Analyzed: 2017-09-02						
Solids, Total Suspended	< 3.3	2.0 mg/L							
LCS (B7I0042-BS1)			Prepared: 2017-09-01, Analyzed: 2017-09-02						
Solids, Total Suspended	98.0	2.0 mg/L	100		98	94-105			
LCS (B7I0042-BS2)			Prepared: 2017-09-01, Analyzed: 2017-09-02						
Solids, Total Suspended	102	2.0 mg/L	100		102	94-105			
General Parameters, Batch B7I0103									
Reference (B7I0103-SRM1)			Prepared: 2017-09-02, Analyzed: 2017-09-02						
pH	6.95	0.10 pH units	7.00		99	98-102			
General Parameters, Batch B7I0105									
Blank (B7I0105-BLK1)			Prepared: 2017-09-02, Analyzed: 2017-09-02						
Conductivity (EC)	< 2.0	2.0 µS/cm							
LCS (B7I0105-BS1)			Prepared: 2017-09-02, Analyzed: 2017-09-02						
Conductivity (EC)	1440	2.0 µS/cm	1410		102	95-105			
Microbiological Parameters, Batch B7H2259									
Blank (B7H2259-BLK1)			Prepared: 2017-08-30, Analyzed: 2017-08-31						
Coliforms, Fecal (Q-Tray)	< 1.0	1.0 MPN/100 mL							
Duplicate (B7H2259-DUP1)			Source: 7082675-01		Prepared: 2017-08-30, Analyzed: 2017-08-31				
Coliforms, Fecal (Q-Tray)	< 1.0	1.0 MPN/100 mL	< 1.0						30
Total Metals, Batch B7I0234									
Blank (B7I0234-BLK1)			Prepared: 2017-09-06, Analyzed: 2017-09-06						
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Beryllium, total	< 0.00010	0.00010 mg/L							
Bismuth, total	< 0.00010	0.00010 mg/L							
Boron, total	< 0.0050	0.0050 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							

APPENDIX 1: QUALITY CONTROL DATA

REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7082675
2017-09-11

Analyte	Result	MRL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
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Total Metals, Batch B710234, Continued

Blank (B710234-BLK1), Continued

Prepared: 2017-09-06, Analyzed: 2017-09-06

Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Lithium, total	< 0.00010	0.00010 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							
Nickel, total	< 0.00040	0.00040 mg/L							
Phosphorus, total	< 0.050	0.050 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Silicon, total	< 1.0	1.0 mg/L							
Silver, total	< 0.000050	0.000050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Sulfur, total	< 3.0	3.0 mg/L							
Tellurium, total	< 0.00050	0.00050 mg/L							
Thallium, total	< 0.000020	0.000020 mg/L							
Thorium, total	< 0.00010	0.00010 mg/L							
Tin, total	< 0.00020	0.00020 mg/L							
Titanium, total	< 0.0050	0.0050 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Vanadium, total	< 0.0010	0.0010 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							
Zirconium, total	< 0.00010	0.00010 mg/L							

LCS (B710234-BS1)

Prepared: 2017-09-06, Analyzed: 2017-09-06

Aluminum, total	0.0234	0.0050 mg/L	0.0200		117	80-120			
Antimony, total	0.0199	0.00020 mg/L	0.0200		99	80-120			
Arsenic, total	0.0208	0.00050 mg/L	0.0200		104	80-120			
Barium, total	0.0196	0.0050 mg/L	0.0200		98	80-120			
Beryllium, total	0.0212	0.00010 mg/L	0.0200		106	80-120			
Bismuth, total	0.0206	0.00010 mg/L	0.0200		103	80-120			
Boron, total	0.0207	0.0050 mg/L	0.0200		104	80-120			
Cadmium, total	0.0206	0.000010 mg/L	0.0200		103	80-120			
Calcium, total	2.16	0.20 mg/L	2.00		108	80-120			
Chromium, total	0.0209	0.00050 mg/L	0.0200		105	80-120			
Cobalt, total	0.0209	0.00010 mg/L	0.0200		105	80-120			
Copper, total	0.0220	0.00040 mg/L	0.0200		110	80-120			
Iron, total	2.09	0.010 mg/L	2.00		105	80-120			
Lead, total	0.0202	0.00020 mg/L	0.0200		101	80-120			
Lithium, total	0.0210	0.00010 mg/L	0.0200		105	80-120			
Magnesium, total	2.10	0.010 mg/L	2.00		105	80-120			
Manganese, total	0.0211	0.00020 mg/L	0.0200		106	80-120			
Molybdenum, total	0.0190	0.00010 mg/L	0.0200		95	80-120			
Nickel, total	0.0212	0.00040 mg/L	0.0200		106	80-120			
Phosphorus, total	2.17	0.050 mg/L	2.00		108	80-120			
Potassium, total	2.15	0.10 mg/L	2.00		107	80-120			
Selenium, total	0.0218	0.00050 mg/L	0.0200		109	80-120			
Silicon, total	2.4	1.0 mg/L	2.00		119	80-120			
Silver, total	0.0205	0.000050 mg/L	0.0200		102	80-120			
Sodium, total	2.15	0.10 mg/L	2.40		90	80-120			
Strontium, total	0.0204	0.0010 mg/L	0.0200		102	80-120			
Sulfur, total	5.7	3.0 mg/L	5.00		114	80-120			
Tellurium, total	0.0214	0.00050 mg/L	0.0200		107	80-120			
Thallium, total	0.0206	0.000020 mg/L	0.0200		103	80-120			
Thorium, total	0.0198	0.00010 mg/L	0.0200		99	80-120			
Tin, total	0.0206	0.00020 mg/L	0.0200		103	80-120			

APPENDIX 1: QUALITY CONTROL DATA

REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7082675
2017-09-11

Analyte	Result	MRL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
Total Metals, Batch B710234, Continued									
LCS (B710234-BS1), Continued					Prepared: 2017-09-06, Analyzed: 2017-09-06				
Titanium, total	0.0213	0.0050 mg/L	0.0200		106	80-120			
Uranium, total	0.0205	0.000020 mg/L	0.0200		102	80-120			
Vanadium, total	0.0202	0.0010 mg/L	0.0200		101	80-120			
Zinc, total	0.0227	0.0040 mg/L	0.0200		114	80-120			
Zirconium, total	0.0214	0.00010 mg/L	0.0200		107	80-120			
Reference (B710234-SRM1)					Prepared: 2017-09-06, Analyzed: 2017-09-06				
Aluminum, total	0.302	0.0050 mg/L	0.303		100	82-114			
Antimony, total	0.0519	0.00020 mg/L	0.0511		101	88-115			
Arsenic, total	0.128	0.00050 mg/L	0.118		108	88-111			
Barium, total	0.808	0.0050 mg/L	0.823		98	83-110			
Beryllium, total	0.0535	0.00010 mg/L	0.0496		108	80-119			
Boron, total	3.10	0.0050 mg/L	3.45		90	80-118			
Cadmium, total	0.0516	0.000010 mg/L	0.0495		104	90-110			
Calcium, total	12.6	0.20 mg/L	11.6		109	85-113			
Chromium, total	0.273	0.00050 mg/L	0.250		109	88-111			
Cobalt, total	0.0414	0.00010 mg/L	0.0377		110	90-114			
Copper, total	0.547	0.00040 mg/L	0.486		112	90-117			
Iron, total	0.553	0.010 mg/L	0.488		113	90-116			
Lead, total	0.205	0.00020 mg/L	0.204		101	90-110			
Lithium, total	0.419	0.00010 mg/L	0.403		104	79-118			
Magnesium, total	4.28	0.010 mg/L	3.79		113	88-116			
Manganese, total	0.117	0.00020 mg/L	0.109		107	88-108			
Molybdenum, total	0.195	0.00010 mg/L	0.198		99	88-110			
Nickel, total	0.266	0.00040 mg/L	0.249		107	90-112			
Phosphorus, total	0.242	0.050 mg/L	0.227		106	72-118			
Potassium, total	8.18	0.10 mg/L	7.21		113	87-116			
Selenium, total	0.136	0.00050 mg/L	0.121		112	90-122			
Sodium, total	8.36	0.10 mg/L	7.54		111	86-118			
Strontium, total	0.399	0.0010 mg/L	0.375		106	86-110			
Thallium, total	0.0835	0.000020 mg/L	0.0805		104	90-113			
Uranium, total	0.0308	0.000020 mg/L	0.0306		101	88-112			
Vanadium, total	0.411	0.0010 mg/L	0.386		106	87-110			
Zinc, total	2.49	0.0040 mg/L	2.49		100	90-113			