



FAX COVER SHEET

To: Regulatory Officer

Fax No: 867 873 6610

Date: October 6, 2016

Company: MVLWB

From: Alan Harris

Number of pages: 7 (including cover)

Please find attached copy of correspondence forwarded to Brad McInnes, Regional Water Officer. Request has been made for emergency decant of lagoon #3 of the Fort Liard Sewage Lagoon. Copy of test results is attached. Any problems or questions please give me a call.

Thank you

Alan Harris
Manager Municipal Operations
Hamlet of Fort Liard, NT
867 770 4104 ext. 103
mws@fortliard.com

Mackenzie Valley Land
& Water Board

File _____

OCT 06 2016

Application # MV2009L3-6025
Copied To EJ/R

Hamlet of Fort Liard

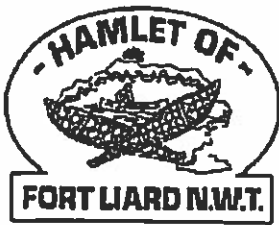
Fort Liard

Northwest Territories

Phone: (867) 770 - 4104

Fax: (867) 770 - 4004

General Delivery Fort Liard NT X0G 0A0



FAX COVER SHEET

To: Brad McInnes

Company: ENR

Fax No: 867 695 2381

From: Alan Harris

Date: October 5, 2016

Number of pages: 6 (including cover)

COPY

Please find attached Ft Liard Analytical Data for Sewage Lagoon #3. Given the test results show higher results than License effluent quality standards Maximum average concentration parameters we must request permission to perform emergency decant of lagoon #3. Our sewage lagoon dyke freeboard limit is now at the point of exceeding License limits.

We realize that this is a problem that must be addressed and is the reasoning behind our proposed work to be undertaken on our sewage lagoon facility in 2017. Please contact me to discuss this problem and my request for emergency decant.

Thank you

Alan Harris
Manager Municipal Operations
Hamlet of Fort Liard, NT
867 770 4104 ext. 103
mws@fortliard.com

Hamlet of Fort Liard

Fort Liard

Northwest Territories

Phone: (867) 770 - 4104

Fax: (867) 770 - 4004

General Delivery Fort Liard NT X0G 0A0



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	6091732
PO NUMBER	4149	RECEIVED / TEMP	2016-09-23 14:28 / 16°C
PROJECT	Sewage Lagoon	REPORTED	2016-10-05
PROJECT INFO	Sewage Lagoon 3	COC NUMBER	A04615

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.

COPY

Michelle LaBonte

Authorized By: Michelle LaBonte, B.Sc., P.Chem.
Lab Manager, Edmonton

If you have any questions or concerns, please contact your Account Manager:
Sarah Cunningham-Fleming (scunningham-fleming@caro.ca)

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ANALYSIS INFORMATION

REPORTED TO Fort Liard, Hamlet of
PROJECT Sewage Lagoon

WORK ORDER 6091732
REPORTED 2016-10-05

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 (C-Tray) in Water	APHA 9223 B*	Most Probable Number / Enzyme Substrate Endo Agar	Edmonton
Conductivity in Water	APHA 2510 B	Conductivity Meter	Edmonton
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

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

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 6091732
2016-10-05

Analyte	Result / Recovery	MRL / Units Limits	Prepared	Analyzed	Notes
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Sample ID: Sewage Lagoon #3 (6091732-01) [Water] Sampled: 2016-09-22 10:00

General Parameters

Ammonia, Total (as N)	0.51	0.05 mg/L	N/A	2016-09-27	
BOD, 5-day	<12.9	2 mg/L	2016-09-24	2016-09-29	BOD2
BOD, 5-day Carbonaceous	<13.4	2 mg/L	2016-09-24	2016-09-29	BOD2
Conductivity (EC)	764	2 µS/cm	N/A	2016-09-24	
pH	9.69	0.01 pH units	N/A	2016-09-24	HT2
Solids, Total Dissolved	482	10 mg/L	N/A	2016-09-29	
Solids, Total Suspended	68	2 mg/L	N/A	2016-09-29	

Microbiological Parameters

Coliforms, Fecal (Q-Tray)	< 50.0	1.0 MPN/100 mL	2016-09-23	2016-09-25	
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Sample / Analysis Qualifiers:

- BOD2** The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criterion of at least 2 mg/L.
- HT2** The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: QUALITY CONTROL DATA

REPORTED TO Fort Liard, Hamlet of
PROJECT Sewage Lagoon

WORK ORDER 6091732
REPORTED 2016-10-05

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 B611382

Reference (B611382-SRM1)		Prepared: 2016-09-24, Analyzed: 2016-09-24							
pH	6.90	0.01 pH units	7.00		99	98-102			
Reference (B611382-SRM2)		Prepared: 2016-09-24, Analyzed: 2016-09-24							
pH	6.91	0.01 pH units	7.00		98	98-102			

General Parameters, Batch B611383

Blank (B611383-BLK1)		Prepared: 2016-09-24, Analyzed: 2016-09-24							
Conductivity (EC)	< 2	2 µS/cm							
Blank (B611383-BLK2)		Prepared: 2016-09-24, Analyzed: 2016-09-24							
Conductivity (EC)	< 2	2 µS/cm							
LCS (B611383-BS1)		Prepared: 2016-09-24, Analyzed: 2016-09-24							
Conductivity (EC)	1000	2 µS/cm	1000		100	99-103			
LCS (B611383-BS2)		Prepared: 2016-09-24, Analyzed: 2016-09-24							
Conductivity (EC)	1000	2 µS/cm	1000		100	99-103			

General Parameters, Batch B611470

Blank (B611470-BLK1)		Prepared: 2016-09-24, Analyzed: 2016-09-29							
BOD, 5-day	< 1	2 mg/L							
Blank (B611470-BLK2)		Prepared: 2016-09-24, Analyzed: 2016-09-29							
BOD, 5-day	< 1	2 mg/L							
LCS (B611470-BS1)		Prepared: 2016-09-24, Analyzed: 2016-09-29							
BOD, 5-day	192	2 mg/L	198		97	85-115			

General Parameters, Batch B611471



APPENDIX 1: QUALITY CONTROL DATA

REPORTED TO Fort Liard, Hamlet of
PROJECT Sewage Lagoon

WORK ORDER 6091732
REPORTED 2016-10-05

Analyte	Result	MRL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
<i>General Parameters, Batch B611471, Continued</i>									
Blank (B611471-BLK1) Prepared: 2016-09-24, Analyzed: 2016-09-29									
BOD, 5-day Carbonaceous	< 1	2 mg/L							
Blank (B611471-BLK2) Prepared: 2016-09-24, Analyzed: 2016-09-29									
BOD, 5-day Carbonaceous	< 1	2 mg/L							
LCS (B611471-BS1) Prepared: 2016-09-24, Analyzed: 2016-09-29									
BOD, 5-day Carbonaceous	192	2 mg/L	198		97	85-115			
Duplicate (B611471-DUP1) Source: 6091732-01 Prepared: 2016-09-24, Analyzed: 2016-09-29									
BOD, 5-day Carbonaceous	< 15	2 mg/L		< 15				21	BOD2

General Parameters, Batch B611598

Blank (B611598-BLK1) Prepared: 2016-09-27, Analyzed: 2016-09-27									
Ammonia, Total (as N)	< 0.05	0.05 mg/L							
LCS (B611598-BS1) Prepared: 2016-09-27, Analyzed: 2016-09-27									
Ammonia, Total (as N)	0.20	0.05 mg/L	0.200		101	84-113			

General Parameters, Batch B611651

Blank (B611651-BLK1) Prepared: 2016-09-29, Analyzed: 2016-09-29									
Solids, Total Dissolved	< 20	10 mg/L							
Reference (B611651-SRM1) Prepared: 2016-09-29, Analyzed: 2016-09-29									
Solids, Total Dissolved	264	10 mg/L	240		110	85-115			

General Parameters, Batch B611652

Blank (B611652-BLK1) Prepared: 2016-09-29, Analyzed: 2016-09-29									
Solids, Total Suspended	< 2	2 mg/L							
LCS (B611652-BS1) Prepared: 2016-09-29, Analyzed: 2016-09-29									
Solids, Total Suspended	50	2 mg/L	50.0		101	84-105			

Microbiological Parameters, Batch B611448

Blank (B611448-BLK1) Prepared: 2016-09-23, Analyzed: 2016-09-25									
Coliforms, Fecal (Q-Tray)	< 1.0	1.0 MPN/100 mL							

QC Qualifiers:

BOD2 The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criterion of at least 2 mg/L.