

From: [Erica Janes](#)
To: [Permits](#)
Cc: [Heather Scott](#)
Subject: FW: fax regarding Fort Liard sewage lagoon
Date: Tuesday, July 4, 2017 12:00:48 PM
Attachments: [image001.png](#)
[7062194_1_RPT_CARO-M0_2017_06_30_1314.pdf](#)
[MV2009L3-0025 - Emergency decant request - Jun30-17.docx](#)

Please post email chain and attachments to MV2009L3-0025 – Ft Liard – 5 Reports and Studies / Ops and Nots – Request and permission for emergency decant of Cell 3 – Jun30-17

From: Heather E. Beck [mailto:Heather_Beck@gov.nt.ca]
Sent: Friday, June 30, 2017 4:58 PM
To: Mike Vassal <Mike_Vassal@gov.nt.ca>
Cc: Erica Janes <ejanes@mvlwb.com>; Nahum Lee <Nahum_Lee@gov.nt.ca>
Subject: RE: fax regarding Fort Liard sewage lagoon

Thanks Mike,

I have received it. I will review and compare with their water license requirements.

Please advise the hamlet of Fort Liard to proceed with emergency decant as planned, but just enough to protect their infrastructure and provide the required free-board until effluent results are in line with license requirements.

Thanks for your attention to this. Have a good weekend.

Heather Beck
Water Resource Officer
Water Division, North Slave Region
Environment and Natural Resources
Government of the Northwest Territories

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*Before printing, think green
Avant d'imprimer, pensez à l'environnement*

From: Mike Vassal
Sent: Friday, June 30, 2017 4:48 PM
To: Heather E. Beck
Subject: fax regarding Fort Liard sewage lagoon

Hi Heather
I sent the fax. I'll await your response.
Thanks
Mike

Mársi | Kinanaskomitin | Thank you | Merci | Hǽj' | Quana | Qujannamiik | Quyanainni | Máhsı | Máhsı | Mahsi
Mike Vassal
Manager, Resource Management
Department of Lands
South Slave Region
Government of the Northwest Territories
Box 658, Fort Smith, NT
X0E 0P0

Phone: 867 872-2558 ex 24,
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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 7062194

PO NUMBER 4678

RECEIVED / TEMP 2017-06-23 11:20 / 19°C

PROJECT Sewage Lagoon

REPORTED 2017-06-30

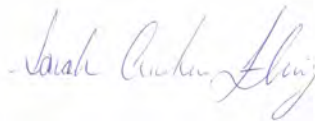
PROJECT INFO Sewage Lagoon 3

COC NUMBER A04617

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
Tel: 604-279-1499

#102 3677 Highway 97N
Kelowna, BC V1X 5C3
Tel: 250-765-9646

17225 109 Avenue
Edmonton, AB T5S 1H7
Tel: 780-489-9100

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REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7062194
2017-06-30

| 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 |
| 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

REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7062194
2017-06-30

| Analyte | Result / Recovery | MRL / Limits | Units | Prepared | Analyzed | Notes |
|---------|-------------------|--------------|-------|----------|----------|-------|
|---------|-------------------|--------------|-------|----------|----------|-------|

Sample ID: Lagoon 3 (7062194-01) [Water] Sampled: 2017-06-22 10:00

General Parameters

| | | | | | | |
|-------------------------|------|-------|----------|------------|------------|-----|
| Ammonia, Total (as N) | 18.0 | 0.050 | mg/L | N/A | 2017-06-23 | |
| BOD, 5-day | 41.6 | 2.0 | mg/L | 2017-06-23 | 2017-06-28 | |
| BOD, 5-day Carbonaceous | 27.1 | 2.0 | mg/L | 2017-06-23 | 2017-06-28 | |
| Conductivity (EC) | 1040 | 2.0 | µS/cm | N/A | 2017-06-24 | |
| pH | 8.34 | 0.01 | pH units | N/A | 2017-06-24 | HT2 |
| Solids, Total Dissolved | 548 | 10 | mg/L | N/A | 2017-06-28 | |
| Solids, Total Suspended | 44.0 | 2.0 | mg/L | N/A | 2017-06-24 | |

Microbiological Parameters

| | | | | | | |
|---------------------------|-------|-----|------------|------------|------------|--|
| Coliforms, Fecal (Q-Tray) | < 1.0 | 1.0 | MPN/100 mL | 2017-06-23 | 2017-06-24 | |
|---------------------------|-------|-----|------------|------------|------------|--|

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 7062194 2017-06-30

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 |
|---------|--------|-----------|-------------|---------------|-------|-----------|-------|-----------|-------|
|---------|--------|-----------|-------------|---------------|-------|-----------|-------|-----------|-------|

General Parameters, Batch B7F1747

| | | | | | | | | | |
|-----------------------------|-------|----------|--|--|----|--------|--|--|--|
| Blank (B7F1747-BLK1) | | | Prepared: 2017-06-24, Analyzed: 2017-06-24 | | | | | | |
| Solids, Total Suspended | < 2.0 | 2.0 mg/L | | | | | | | |
| Blank (B7F1747-BLK2) | | | Prepared: 2017-06-24, Analyzed: 2017-06-24 | | | | | | |
| Solids, Total Suspended | < 2.0 | 2.0 mg/L | | | | | | | |
| LCS (B7F1747-BS1) | | | Prepared: 2017-06-24, Analyzed: 2017-06-24 | | | | | | |
| Solids, Total Suspended | 97.0 | 2.0 mg/L | 100 | | 97 | 94-105 | | | |
| LCS (B7F1747-BS2) | | | Prepared: 2017-06-24, Analyzed: 2017-06-24 | | | | | | |
| Solids, Total Suspended | 97.0 | 2.0 mg/L | 100 | | 97 | 94-105 | | | |

General Parameters, Batch B7F1761

| | | | | | | | | | |
|-----------------------------|---------|------------|--|--|-----|--------|--|--|--|
| Blank (B7F1761-BLK1) | | | Prepared: 2017-06-23, Analyzed: 2017-06-23 | | | | | | |
| Ammonia, Total (as N) | < 0.050 | 0.050 mg/L | | | | | | | |
| LCS (B7F1761-BS1) | | | Prepared: 2017-06-23, Analyzed: 2017-06-23 | | | | | | |
| Ammonia, Total (as N) | 0.209 | 0.050 mg/L | 0.200 | | 105 | 94-113 | | | |

General Parameters, Batch B7F1764

| | | | | | | | | | |
|-----------------------------|-------|----------|--|--|----|--------|--|--|--|
| Blank (B7F1764-BLK1) | | | Prepared: 2017-06-23, Analyzed: 2017-06-28 | | | | | | |
| BOD, 5-day | < 1.1 | 2.0 mg/L | | | | | | | |
| Blank (B7F1764-BLK2) | | | Prepared: 2017-06-23, Analyzed: 2017-06-28 | | | | | | |
| BOD, 5-day | < 1.1 | 2.0 mg/L | | | | | | | |
| LCS (B7F1764-BS1) | | | Prepared: 2017-06-23, Analyzed: 2017-06-28 | | | | | | |
| BOD, 5-day | 182 | 2.0 mg/L | 198 | | 92 | 85-115 | | | |

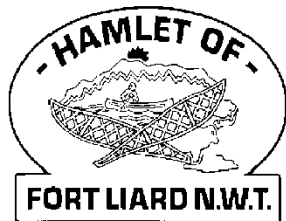
General Parameters, Batch B7F1765

APPENDIX 1: QUALITY CONTROL DATA

REPORTED TO PROJECT Fort Liard, Hamlet of Sewage Lagoon

WORK ORDER REPORTED 7062194
2017-06-30

| Analyte | Result | MRL Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|--------|----------------|---|---------------|-------|-----------|-------|-----------|-------|
| General Parameters, Batch B7F1765, Continued | | | | | | | | | |
| Blank (B7F1765-BLK1) | | | Prepared: 2017-06-23, Analyzed: 2017-06-28 | | | | | | |
| BOD, 5-day Carbonaceous | < 1.3 | 2.0 mg/L | | | | | | | |
| Blank (B7F1765-BLK2) | | | Prepared: 2017-06-23, Analyzed: 2017-06-28 | | | | | | |
| BOD, 5-day Carbonaceous | < 1.3 | 2.0 mg/L | | | | | | | |
| LCS (B7F1765-BS1) | | | Prepared: 2017-06-23, Analyzed: 2017-06-28 | | | | | | |
| BOD, 5-day Carbonaceous | 187 | 2.0 mg/L | 198 | | 95 | 85-115 | | | |
| Duplicate (B7F1765-DUP1) | | | Source: 7062194-01 Prepared: 2017-06-23, Analyzed: 2017-06-28 | | | | | | |
| BOD, 5-day Carbonaceous | 26.2 | 2.0 mg/L | | 27.1 | | | | 21 | |
| General Parameters, Batch B7F1816 | | | | | | | | | |
| Reference (B7F1816-SRM1) | | | Prepared: 2017-06-24, Analyzed: 2017-06-24 | | | | | | |
| pH | 6.95 | 0.01 pH units | 7.00 | | 99 | 98-102 | | | |
| General Parameters, Batch B7F1817 | | | | | | | | | |
| Blank (B7F1817-BLK1) | | | Prepared: 2017-06-24, Analyzed: 2017-06-24 | | | | | | |
| Conductivity (EC) | < 2.0 | 2.0 µS/cm | | | | | | | |
| LCS (B7F1817-BS1) | | | Prepared: 2017-06-24, Analyzed: 2017-06-24 | | | | | | |
| Conductivity (EC) | 1430 | 2.0 µS/cm | 1410 | | 102 | 95-105 | | | |
| Duplicate (B7F1817-DUP1) | | | Source: 7062194-01 Prepared: 2017-06-24, Analyzed: 2017-06-24 | | | | | | |
| Conductivity (EC) | 1020 | 2.0 µS/cm | | 1040 | | | 2 | 3 | |
| General Parameters, Batch B7F1950 | | | | | | | | | |
| Blank (B7F1950-BLK1) | | | Prepared: 2017-06-28, Analyzed: 2017-06-28 | | | | | | |
| Solids, Total Dissolved | < 20 | 10 mg/L | | | | | | | |
| Duplicate (B7F1950-DUP1) | | | Source: 7062194-01 Prepared: 2017-06-28, Analyzed: 2017-06-28 | | | | | | |
| Solids, Total Dissolved | 542 | 10 mg/L | | 548 | | | 1 | 5 | |
| Reference (B7F1950-SRM1) | | | Prepared: 2017-06-28, Analyzed: 2017-06-28 | | | | | | |
| Solids, Total Dissolved | 262 | 10 mg/L | 240 | | 109 | 85-115 | | | |
| Microbiological Parameters, Batch B7F1807 | | | | | | | | | |
| Blank (B7F1807-BLK1) | | | Prepared: 2017-06-23, Analyzed: 2017-06-24 | | | | | | |
| Coliforms, Fecal (Q-Tray) | < 1.0 | 1.0 MPN/100 mL | | | | | | | |
| Duplicate (B7F1807-DUP1) | | | Source: 7062194-01 Prepared: 2017-06-23, Analyzed: 2017-06-24 | | | | | | |
| Coliforms, Fecal (Q-Tray) | < 1.0 | 1.0 MPN/100 mL | | < 1.0 | | | | 28 | |



FAX COVER SHEET

To: Erica Janes

Company: MVLWB

Fax No: 867 873 6610

From: Alan Harris

Date: June 30, 2017

Number of pages: 6 (including cover)

Please find attached Ft Liard CARO lab results for the lagoon #3 samples submitted for testing. The results do not meet license effluent quality standards. They are not exceedingly bad for Suspended Solids or BOD₅ but are still over license requirements. Due to our lagoons now being at maximum capacity we **must request an Emergency Decant**. If permission is granted we will schedule to begin the decant on Tuesday July 4, 2017.

If further information is required please call me to discuss these results and plan to emergency decant. We will wait for permission to proceed.

Thank you

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

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Hamlet of Fort Liard

Fort Liard

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General Delivery Fort Liard NT X0G 0A0