ANNUAL REPORT
FOR THE HAMLET OF RANKIN INLET

YEAR BEING REPORTED: 2022

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License No. **3AM-GRA1631** issued to the **Government of Nunavut, Department of Community and Government Services (GN-CGS)**.

a) *Monthly and annual quantities in cubic metres of fresh water withdrawn from Nispissar Lake at Monitoring Station No. GRA-1*
b) *The daily, monthly and annual quantities in cubic metres of freshwater withdrawn from Lower Landing Lake during annual resupply at Monitoring station No. GRA-7*
c) *Monthly and annual quantities in cubic metres of any discharges from the Sewage Treatment Facility at Monitoring Station GRA-3*

Quantities of water used as reported by the Municipality and the estimated discharge of sewage waste based on quantities used.

Month Reported	Quantity of Water Obtained from all sources (m^3)	Quantity of Sewage Waste Discharged (m^3)
January	257.000	Same
February	230.500	Same
March	302.200	Same
April	287.253	Same
May	308.066	Same
June	333.448	Same
July	344.241	Same
August	371.847	Same
September	414.328	Same
October	369.265	Same
November	374.924	Same
December	302.284	Same
ANNUAL TOTAL	3,523.309	Same

Note: Monthly sewage discharge volume is considered as equal to the monthly water consumption volume

Summary of water obtained from Lower Landing Lake water pumped to Nippisar Lake Cells in m^3.

Month Reported	Estimated Water Transferred from Lower Landing Lake pumped to Nippisar Lake (m^3)
July	64,377
August	16,589
September	67,213
October	4,441
TOTAL	**152,620**

Pumping from Lower Landing Lake began on July 19, 2022, and ended on October 05, 2022. An estimated total of 152,620 m^3 was pumped to Nipissar Lake in 2022.

See Appendix C for daily logs

d. **The monthly and annual quantities in cubic metres of sludge removed from the Sewage Treatment Plant at Monitoring Station GRA-4**

The WWTP consists of a splitter tank which diverts flow of wastewater collected to either one of two screening channels where the screening system is used to remove large solids. Solids collected from the screening system are transported to the Rankin Inlet Landfill and effluent is discharged through a diffuser into Prairie Bay. Approximately 1 m^3 of solids are removed weekly.

e. A summary report which includes all data and information generated under the Monitoring Program, including QA/QC program, in electronic formats acceptable to the Board

Refer to Appendix A for GRA-3 Monitoring. Due to a bottle shortage at the lab, sampling for GRA-1 and GRA-7 were not undertaken in 2022

f. **Redundant, memo provided in 2021 annual report.**

g. A summary of modifications and/or major maintenance work carried out on the Water Supply and Sewage Treatment Facilities, including all associated structures

Sewage treatment facility in planning, RFP for design issued 2023.
Design of Water Treatment Plant to begin in 2023.

h. A progress report and revisions (if applicable) to any studies requested by the Board that relate to Waste management, Water use or reclamation and a brief description of any future studies planned by the Licensee including, a non-technical executive summary for the general public, translated into Inuktitut;

None

i. Any revisions required, in the form of addenda, to Plans, Manuals and Reports approved under the Licence;

None

j. A list and description, including volumes, of all unauthorized discharges, spills and summaries of follow-up action taken;

Spills:
July 26, 2022: 130 cubic metres of sewage due to breakage of pipe at Johnston Cove Lift Station

September 12, 2022: 331.50 cubic metres of sewage due to blocked force sewer main. Spill occurred within designated waste disposal zone into Perry Bay. No clean up measures were taken.

k. A summary of any closure and reclamation work undertaken and an outline of any work anticipated for the next year, including any changes to implementation and scheduling;

None

l. A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector;

No concerns were raised during the inspection.

m. A summary of any studies, reports and plans requested by the Board that relate to Waste disposal, Water use or reclamation and a brief description of any future studies planned;

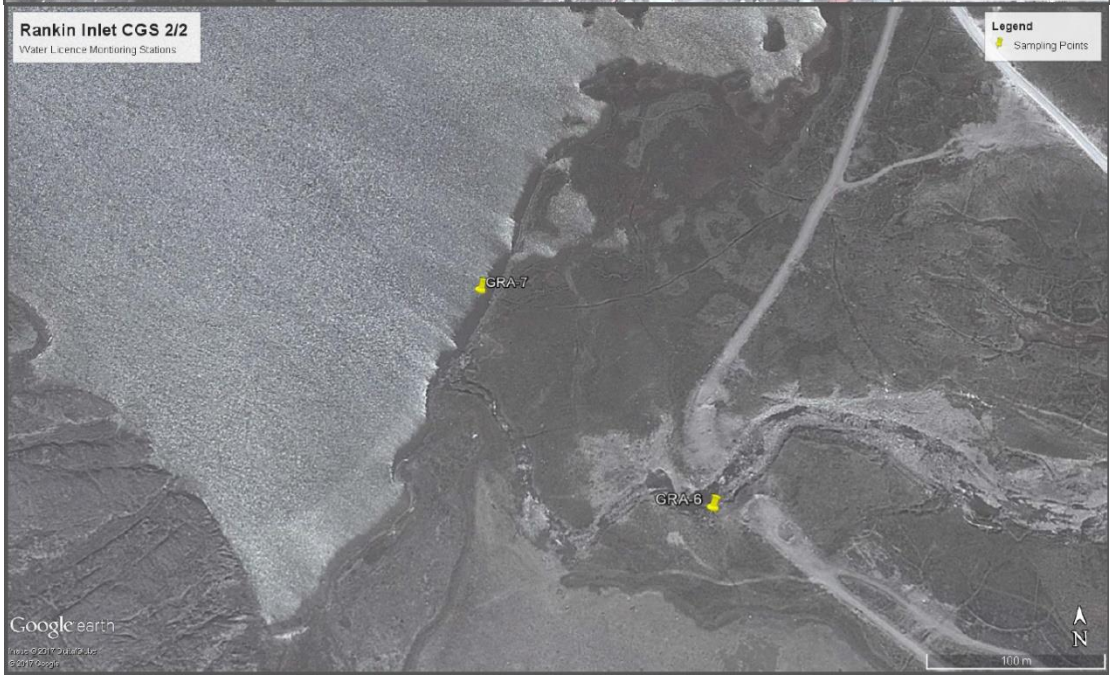
None

n. Any other details on the use of Water or Waste disposal requested by the Board by November 1st of the year being reported.

None

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

Water Licensing Sampling Points:



GRA-1: Raw water supply Nipissar Lake
GRA-3: Wastewater treatment Plant

GRA-7: Lower Landing Lake

Appendix A: GRA-3 Effluent Quality Limits Summary

Appendix B: Follow-up from Hazardous Materials Spill 2022

Appendix C: Daily water resupply logs

Appendix D: Certificate of Analysis

Appendix E: Correspondence of bottle shortage

Appendix F: CIRNAC inspection report

Appendix A

Parameter	Maximum Concentration of any Grab Sample	25 Feb, 2022	27 Apr, 2022	29 Jun, 2022
BOD_5	100 mg/L	175	82	104
Total Suspended Solids	120 mg/L	188	80.6	111
Fecal Coliform	$1x10^6$ CFU/100 mL	>24200	>24200	>24200
Oil and Grease	No visible sheen	32.9	13.3	19.2
pH	Between 6 and 9	7.16	7.26	7.24

Appendix B

From: Chalmers, Elan
To: Duncan, Caroline
Subject: Fw: 355 - Johnston Cove Lift Station - Spill Report Form
Date: February 28, 2023 2:10:01 PM

From: Aukstinaitis, Chris <CAukstinaitis@GOV.NU.CA>
Sent: July 27, 2022 9:06 AM
To: Max Ross <MaxARoss@outlook.com>; Jacob Saunders <jacob@inukshukconstruction.ca>
Cc: John Winter <johnw@mosher.ca>; David Mosher <dave@mosher.ca>; John Mosher <john@mosher.ca>; Marc Losier <marc@mosher.ca>; Thistle, Wayne <WThistle@GOV.NU.CA>; Strickland, Joe <JStrickland@GOV.NU.CA>; Fitzpatrick, Steve <SFitzpatrick1@GOV.NU.CA>; Matthew Breen <mbreen@dillon.ca>; hwestman@dillon.ca <hwestman@dillon.ca>; Chalmers, Elan <EChalmers@gov.nu.ca>; Khan, Ahsan <AKhan@GOV.NU.CA>
Subject: RE: 355 - Johnston Cove Lift Station - Spill Report Form

Good morning,

Just a couple things to make changes on to the report.

-At the top the initial report would have been at 10:48am.

-This document would be Update# 1

-Report number would be 2022-378

-Our estimated volume of the spill is 130 cubic meters.

Other then those the report update looks good.

Jacob after completing the form, please feel free to submit it to spills@gov.nt.ca

Thanks,

Chris Aukstinaitis RSE,OHST/5th Class Power Engineer
Acting Regional Facilities Manager
Government of Nunavut, CGS O&M
Rankin Inlet, NU
(867)645-8166

From: Max Ross <MaxARoss@outlook.com>
Sent: July 26, 2022 7:30 PM
To: Jacob Saunders <jacob@inukshukconstruction.ca>; Aukstinaitis, Chris <CAukstinaitis@GOV.NU.CA>
Cc: John Winter <johnw@mosher.ca>; David Mosher <dave@mosher.ca>; John Mosher

<john@mosher.ca>; Marc Losier <marc@mosher.ca>; Thistle, Wayne <WThistle@GOV.NU.CA>; Strickland, Joe <JStrickland@GOV.NU.CA>; Fitzpatrick, Steve <SFitzpatrick1@GOV.NU.CA>; Matthew Breen <mbreen@dillon.ca>; hwestman@dillon.ca; Chalmers, Elan <EChalmers@gov.nu.ca>; Khan, Ahsan <AKhan@GOV.NU.CA>
Subject: RE: 355 - Johnston Cove Lift Station - Spill Report Form

Hello Jacob and Chris,
I believe Chris Aukstinaitis from our office reported the spill, Chris please correct me if I'm wrong. Also please have a look at Jacob's report (attached) and please let me know if there is a need to submit an update.

Regards,
Max

From: Jacob Saunders <jacob@inukshukconstruction.ca>
Sent: July 26, 2022 8:03 PM
To: Max Ross <MaxARoss@outlook.com>
Cc: John Winter <johnw@mosher.ca>; David Mosher <dave@mosher.ca>; John Mosher <john@mosher.ca>; Marc Losier <marc@mosher.ca>; Thistle, Wayne <WThistle@GOV.NU.CA>; Strickland, Joe <JStrickland@gov.nu.ca>; Fitzpatrick, Steve <sfitzpatrick1@gov.nu.ca>; Aukstinaitis, Chris <CAukstinaitis@gov.nu.ca>; Matthew Breen <mbreen@dillon.ca>; hwestman@dillon.ca
Subject: 355 - Johnston Cove Lift Station - Spill Report Form

Hello Max,

When I called the spill response hotline to report today's spill early this afternoon, I was advised the spill had already been reported by the GN and a spill number assigned (2022-378). I have completed the attached spill report with details from the incident today. I'm not sure who from the GN filed the initial report, but if you would like to submit this you are welcome to. Otherwise, I can submit it as an update to the initial spill report. Please advise.

Best regards,

Jacob Saunders
Project Manager

Mosher Engineering Ltd.
o. (902) 429-0272
c. (902) 277-1103

From: Chalmers, Elan
To: Duncan, Caroline
Subject: Fw: CLOSURE (?): Follow Up with WRO on Johnston LS Spill July 2022
Date: February 28, 2023 2:09:54 PM

From: Strickland, Joe <JStrickland@GOV.NU.CA>
Sent: February 2, 2023 2:20 PM
To: Hooey, Stephen <SHooey1@GOV.NU.CA>; Khan, Ahsan <AKhan@GOV.NU.CA>
Cc: Pisani, Daniel <DPisani@gov.nu.ca>; Chalmers, Elan <EChalmers@gov.nu.ca>
Subject: RE: CLOSURE (?): Follow Up with WRO on Johnston LS Spill July 2022

Good afternoon, All

Just to confirm , the spill in July was caused by the GC doing renovations at Johnston Cove lift Station. The GC was in control of operations at the plant at that time of the spill.There was some confusion who was to submit the report, the operator, the GC or the Project Manager. The operator at the time reported it. The PM was to follow up and close the loop. That never happened.

Regards, Joe

From: Hooey, Stephen <SHooey1@GOV.NU.CA>
Sent: February 2, 2023 12:19 PM
To: Khan, Ahsan <AKhan@GOV.NU.CA>; Strickland, Joe <JStrickland@GOV.NU.CA>
Cc: Pisani, Daniel <DPisani@gov.nu.ca>; Chalmers, Elan <EChalmers@gov.nu.ca>
Subject: RE: CLOSURE (?): Follow Up with WRO on Johnston LS Spill July 2022

Ahsan,

The outstanding report submitted was to the regulator in December. As a courtesy, you may consider contacting the regulator to confirm.
We were going to have a follow-up in the new year in general with the regulator, in any case.

As I understand the process, the operator prepares the spill report and responds to the regulator as required.
In the case cited in the correspondence, a report promised to the regulator by the operator was not provided in an timely manner.

CSD assists the municipalities with this reporting, and if requested, can assist CGS infrastructure as well.
CSD typically prepares the CGS wide reporting for spills and should be notified to ensure it is included.

Thanks,
Stephen

From: Khan, Ahsan <AKhan@GOV.NU.CA>
Sent: February 2, 2023 11:54 AM
To: Strickland, Joe <JStrickland@GOV.NU.CA>; Hooey, Stephen <SHooey1@GOV.NU.CA>
Cc: Pisani, Daniel <DPisani@gov.nu.ca>
Subject: Re: CLOSURE (?): Follow Up with WRO on Johnston LS Spill July 2022

This is just for the record, Scott Low (Land & Planning) hand carried this thing to me yesterday as it had landed on his desk (he told me the person sending this works in the same building as him).

I believe we have closed the loop on this one back in December; a closure follow up report on the Johnston Cove LS sewage leak that the previous PM did not send resulted in this flag – see item 4 (closure communication from CGS was sent to the WRO in December as soon as this was brought to your attention verbally by the WRO but the warning letter was sent anyway) .

Appreciate if you could confirm that no further action is expected or pending on this item.

Stephen
Can we together produce a flow chart for CGS depicting the sequence of actions that need to be taken in case of a spill?

Thanks

Ahsan

From: Irniq, Gord <GIrniq@GOV.NU.CA>
Sent: Thursday, February 2, 2023 9:17 AM
To: Khan, Ahsan <AKhan@GOV.NU.CA>
Subject: scanned docs

Hi Ahsan.
Here are the documents you needed scanned.

Gord Irniq
Regional Maintenance Administrator
CGS O&M
Rankin Inlet, NU
P: 867-645-8152

Appendix C

Lower Landing Lake Water Pumped to Nipissar Lake

Water Licence No. 3AM-GRA1631

GRA-7

Date	Time	Flow Meter Reading (m^3)	Name
19/7/22	1:30	239250	BR
20/7/22	1:30	244717	BR
21/7/22	9:30	249325	BR
22/7/22	9:30	254815	BR
23/7/22	12:35	260787	BR
24/7/22	11:45	265694	BR
25/7/22	9:45	270409	BR
26/7/22	1:30	276820	BR
27/7/22	9:50	281523	BR
28/7/22	10:15	287127	BR
29/7/22	8:30	292211	BR
30/7/22	10:00	298001	BR
31/7/22	10:15	303627	BR
1/8/22	1:00	309924	BR
2/8/22	8:30	314419	BR
3/8/22	9:30	320216	BR
4/9/22	4:00	325648	BR
15/9/22	4:00	330901	BR
17/9/22	2:50	336535	BR
21/9/22	4:00	342247	BR
22/9/22	4:30	348086	BR
23/9/22	2:30	353252	BR
24/9/22	10:30	357895	BR
25.9.22		363632	BR
	STOPPED Pumps		
	RE-Started Pumps		
29.9.22	16:00	387129	AP
5/10/22	2:00	391870	BR

Appendix D

Nunavut Community & Government Services - Rankin Inlet
ATTN: STEVE FITZPATRICK (Rankin Inlet)
P.O. Box 490
Rankin Inlet NU X0C 0G0

Date Received: 28-APR-22
Report Date: 09-MAY-22 15:25 (MT)
Version: FINAL

Client Phone: 867-645-8155

Certificate of Analysis

Lab Work Order #: L2702009

Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ANALYTICAL REPORT

Physical Tests (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2702009-1 Sampled Date: 27-APR-22 Sampled Time: 10:00 Sample ID: RANKIN INLET WWTP - EFFLUENT	
Conductivity	umhos/cm	-	-	629	
Hardness (as CaCO3)	mg/L	-	-	125	HTC
pH	pH units	7.00-10.5	-	7.26	
Total Suspended Solids	mg/L	-	-	80.6	

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Anions and Nutrients (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2702009-1 Sampled Date: 27-APR-22 Sampled Time: 10:00 Sample ID: RANKIN INLET WWTP - EFFLUENT
Alkalinity, Total (as CaCO3)	mg/L	-	-	136
Ammonia, Total (as N)	mg/L	-	-	7.8
Bicarbonate (HCO3)	mg/L	-	-	165
Carbonate (CO3)	mg/L	-	-	<0.60
Chloride (Cl)	mg/L	250	-	81.4
Fluoride (F)	mg/L	-	1.5	0.274
Hydroxide (OH)	mg/L	-	-	<0.34
Nitrate and Nitrite as N	mg/L	-	10	<0.070
Nitrate (as N)	mg/L	-	10	0.028
Nitrite (as N)	mg/L	-	1	0.015
Phosphorus (P)-Total	mg/L	-	-	2.67
Sulfate (SO4)	mg/L	500	-	37.2

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Organic / Inorganic Carbon (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2702009-1 Sampled Date: 27-APR-22 Sampled Time: 10:00 Sample ID: RANKIN INLET WWTP - EFFLUENT
Total Organic Carbon	mg/L	-	-	56.5

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Bacteriological Tests (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2702009-1 Sampled Date: 27-APR-22 Sampled Time: 10:00 Sample ID: RANKIN INLET WWTP - EFFLUENT
Escherichia Coli	MPN/100mL	-	0	>24200
Fecal Coliforms	MPN/100mL	-	-	>24200
Total Coliforms	MPN/100mL	-	0	>24200

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Total Metals (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2702009-1 Sampled Date: 27-APR-22 Sampled Time: 10:00 Sample ID: RANKIN INLET WWTP - EFFLUENT
Aluminum (Al)-Total	mg/L	0.1	2.9	0.0399
Arsenic (As)-Total	mg/L	-	0.01	0.00104
Cadmium (Cd)-Total	mg/L	-	0.005	0.0000330
Calcium (Ca)-Total	mg/L	-	-	35.4
Chromium (Cr)-Total	mg/L	-	0.05	0.00085
Cobalt (Co)-Total	mg/L	-	-	0.00017
Copper (Cu)-Total	mg/L	1	2	0.136
Iron (Fe)-Total	mg/L	0.3	-	0.788
Lead (Pb)-Total	mg/L	-	0.005	0.000547
Magnesium (Mg)-Total	mg/L	-	-	8.91
Manganese (Mn)-Total	mg/L	0.02	0.12	0.0262
Mercury (Hg)-Total	mg/L	-	0.001	0.0000261
Nickel (Ni)-Total	mg/L	-	-	0.00328
Potassium (K)-Total	mg/L	-	-	9.80
Sodium (Na)-Total	mg/L	200	-	43.8
Zinc (Zn)-Total	mg/L	5	-	0.0918

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Aggregate Organics (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2702009-1 Sampled Date: 27-APR-22 Sampled Time: 10:00 Sample ID: RANKIN INLET WWTP - EFFLUENT
Biochemical Oxygen Demand	mg/L	-	-	82
BOD Carbonaceous	mg/L	-	-	58
Oil and Grease	mg/L	-	-	13.3
Phenols (4AAP)	mg/L	-	-	0.0103

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Volatile Organic Compounds (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2702009-1 Sampled Date: 27-APR-22 Sampled Time: 10:00 Sample ID: RANKIN INLET WWTP - EFFLUENT
Benzene	mg/L	-	0.005	<0.00050
Ethyl benzene	mg/L	0.0016	0.14	<0.00050
Toluene	mg/L	0.024	0.06	<0.0010
o-Xylene	mg/L	-	-	<0.00050
m+p-Xylenes	mg/L	-	-	<0.00040
Xylenes (Total)	mg/L	0.02	0.09	<0.00064
F1 (C6-C10)	mg/L	-	-	<0.10
F1-BTEX	mg/L	-	-	<0.10
F2-Naphth	mg/L	-	-	<0.10
F3-PAH	mg/L	-	-	0.69
Total Hydrocarbons (C6-C50)	mg/L	-	-	1.03
Surrogate: 4-Bromofluorobenzene (SS)	%	-	-	85.3

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Hydrocarbons (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2702009-1 Sampled Date: 27-APR-22 Sampled Time: 10:00 Sample ID: RANKIN INLET WWTP - EFFLUENT
F2 (C10-C16)	mg/L	-	-	<0.10
F3 (C16-C34)	mg/L	-	-	0.69
F4 (C34-C50)	mg/L	-	-	0.33
Chrom. to baseline at nC50	No Unit	-	-	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	106.7

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Polycyclic Aromatic Hydrocarbons (WATER)

				ALS ID	L2702009-1
				Sampled Date	27-APR-22
				Sampled Time	10:00
				Sample ID	RANKIN INLET WWTP - EFFLUENT
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Acenaphthene	mg/L	-	-	<0.000020	
Acenaphthylene	mg/L	-	-	<0.000020	
Acridine	mg/L	-	-	<0.000042	DLM
Anthracene	mg/L	-	-	<0.000040	DLM
Benzo(a)anthracene	mg/L	-	-	<0.000010	
Benzo(a)pyrene	mg/L	-	0.00004	<0.0000050	
Benzo(b&j)fluoranthene	mg/L	-	-	<0.000010	
Benzo(g,h,i)perylene	mg/L	-	-	<0.000020	
Benzo(k)fluoranthene	mg/L	-	-	<0.000010	
Chrysene	mg/L	-	-	<0.000020	
Dibenz(a,h)anthracene	mg/L	-	-	0.0000107	
Fluoranthene	mg/L	-	-	<0.000020	
Fluorene	mg/L	-	-	<0.000034	DLQ
Indeno(1,2,3-cd)pyrene	mg/L	-	-	0.000104	
1-Methylnaphthalene	mg/L	-	-	<0.000020	
2-Methylnaphthalene	mg/L	-	-	<0.000020	
Naphthalene	mg/L	-	-	<0.000050	
Phenanthrene	mg/L	-	-	<0.000050	
Pyrene	mg/L	-	-	<0.000010	
Quinoline	mg/L	-	-	<0.000073	DLM
Surrogate: Acridine d9	%	-	-	118.4	
Surrogate: Chrysene d12	%	-	-	126.7	
Surrogate: Naphthalene d8	%	-	-	133.9	SURR-ND
Surrogate: Phenanthrene d10	%	-	-	111.9	
B(a)P Total Potency Equivalent	mg/L	-	-	<0.000030	

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be

Reference Information

unaffected.

DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B

Samples are diluted and seeded, have TCMP added to inhibit nitrogenous demands, and then are incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B

Samples are diluted and seeded and then incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

C-TOC-HTC-WP	Water	Total Organic Carbon by Combustion	APHA 5310 B-WP

Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

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

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

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.

F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

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

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-PPM-WT	Water	F2-F4 reported in ppm	MOE DECPH-E3421/CCME TIER 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil, Tier 1 Method, CCME, 2001.

FC10-QT97-WP	Water	Fecal coliforms, 1:10 dilution by QT97	APHA 9223B QT97

Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Substrate Coliform Test". Fecal (thermotolerant) coliform bacteria are determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 44.5 +/- 0.2 degrees C for 18 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.

HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in $CaCO_3$ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-T-CVAA-WP	Water	Mercury Total	EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod.)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

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.

NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

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

NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

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

OG-GRAV-WP	Water	Oil & Grease - Gravimetric	EPA 1664 (modified)

Water samples are acidified and extracted with hexane; the hexane extract is collected in a pre-weighed vial. The solvent is evaporated and Total Oil & Grease is determined from the weight of the residue in the vial.

P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

PAH-CCME-PPM-WT	Water	CCME PAHs in mg/L	EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
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.			
TC,EC10-QT97-WP	Water	Total and E. coli, 1:10 dilution by QT97	APHA 9223B QT97
Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Susbtrate Coliform Test". Total coliforms and Eschericia coli bacteria are simultaneously determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

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
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

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 wwt - 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.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2702009 Report Date: 09-MAY-22

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5770219								
WG3722387-5 DUP		**L2702009-1**						
Alkalinity, Total (as CaCO3)		136	136		mg/L	0.4	20	29-APR-22
WG3722387-4 LCS								
Alkalinity, Total (as CaCO3)			101.8		%		85-115	29-APR-22
WG3722387-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	29-APR-22
BOD-CBOD-WP	**Water**							
Batch R5771130								
WG3721779-4 DUP		**L2701922-5**						
BOD Carbonaceous		161	159		mg/L	1.8	30	29-APR-22
WG3721779-2 LCS								
BOD Carbonaceous			110.3		%		85-115	29-APR-22
WG3721779-1 MB								
BOD Carbonaceous			<2.0		mg/L		2	29-APR-22
BOD-WP	**Water**							
Batch R5771130								
WG3721779-3 DUP		**L2701902-2**						
Biochemical Oxygen Demand		600	590		mg/L	2.4	30	29-APR-22
WG3721779-2 LCS								
Biochemical Oxygen Demand			110.0		%		85-115	29-APR-22
WG3721779-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	29-APR-22
BTEXS+F1-HSMS-WP	**Water**							
Batch R5772979								
WG3722022-4 DUP		**L2702009-1**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	06-MAY-22
Toluene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	30	06-MAY-22
Ethyl benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	06-MAY-22
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	06-MAY-22
m+p-Xylenes		<0.00040	<0.00040	RPD-NA	mg/L	N/A	30	06-MAY-22
F1 (C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	06-MAY-22
WG3722022-2 LCS								
Benzene			110.0		%		70-130	06-MAY-22
Toluene			106.9		%		70-130	06-MAY-22
Ethyl benzene			103.8		%		70-130	06-MAY-22
o-Xylene			106.8		%		70-130	06-MAY-22

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	**Water**							
Batch R5772979								
WG3722022-2 LCS								
m+p-Xylenes			114.7		%		70-130	06-MAY-22
WG3722022-3 LCS								
F1 (C6-C10)			95.8		%		70-130	06-MAY-22
WG3722022-1 MB								
Benzene			<0.00050		mg/L		0.0005	06-MAY-22
Toluene			<0.0010		mg/L		0.001	06-MAY-22
Ethyl benzene			<0.00050		mg/L		0.0005	06-MAY-22
o-Xylene			<0.00050		mg/L		0.0005	06-MAY-22
m+p-Xylenes			<0.00040		mg/L		0.0004	06-MAY-22
F1 (C6-C10)			<0.10		mg/L		0.1	06-MAY-22
Surrogate: 4-Bromofluorobenzene (SS)			94.3		%		70-130	06-MAY-22
WG3722022-5 MS		**L2702009-1**						
Benzene			104.5		%		70-130	06-MAY-22
Toluene			99.5		%		70-130	06-MAY-22
Ethyl benzene			95.6		%		70-130	06-MAY-22
o-Xylene			98.0		%		70-130	06-MAY-22
m+p-Xylenes			105.5		%		70-130	06-MAY-22
WG3722022-6 MS		**L2702009-1**						
F1 (C6-C10)			102.7		%		70-130	06-MAY-22
C-TOC-HTC-WP	**Water**							
Batch R5774637								
WG3725081-3 DUP		**L2703310-4**						
Total Organic Carbon		5.32	5.32		mg/L	0.0	20	07-MAY-22
WG3725081-2 LCS								
Total Organic Carbon			92.6		%		80-120	07-MAY-22
WG3725081-1 MB								
Total Organic Carbon			<0.50		mg/L		0.5	07-MAY-22
WG3725081-4 MS		**L2703310-5**						
Total Organic Carbon			86.4		%		70-130	07-MAY-22
CL-IC-N-WP	**Water**							
Batch R5770055								
WG3721513-7 DUP		**L2701883-2**						
Chloride (Cl)		3.82	3.79		mg/L	0.8	20	28-APR-22
WG3721513-6 LCS								
Chloride (Cl)			98.3		%		90-110	28-APR-22
WG3721513-5 MB								

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WP	**Water**							
Batch R5770055								
WG3721513-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	28-APR-22
WG3721513-8 MS		**L2701883-2**						
Chloride (Cl)			105.0		%		75-125	28-APR-22
EC-WP	**Water**							
Batch R5770219								
WG3722387-5 DUP		**L2702009-1**						
Conductivity		629	631		umhos/cm	0.3	10	29-APR-22
WG3722387-3 LCS								
Conductivity			100.1		%		90-110	29-APR-22
WG3722387-1 MB								
Conductivity			<1.0		umhos/cm		1	29-APR-22
F-IC-N-WP	**Water**							
Batch R5770055								
WG3721513-7 DUP		**L2701883-2**						
Fluoride (F)		0.078	0.078		mg/L	0.7	20	28-APR-22
WG3721513-6 LCS								
Fluoride (F)			98.7		%		90-110	28-APR-22
WG3721513-5 MB								
Fluoride (F)			<0.020		mg/L		0.02	28-APR-22
WG3721513-8 MS		**L2701883-2**						
Fluoride (F)			106.8		%		75-125	28-APR-22
F2-F4-PPM-WT	**Water**							
Batch R5774864								
WG3724206-2 LCS								
F2 (C10-C16)			107.5		%		70-130	09-MAY-22
F3 (C16-C34)			108.9		%		70-130	09-MAY-22
F4 (C34-C50)			107.5		%		70-130	09-MAY-22
WG3724206-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	09-MAY-22
F3 (C16-C34)			<0.25		mg/L		0.25	09-MAY-22
F4 (C34-C50)			<0.25		mg/L		0.25	09-MAY-22
Surrogate: 2-Bromobenzotrifluoride			87.2		%		60-140	09-MAY-22
FC10-QT97-WP	**Water**							

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
FC10-QT97-WP	**Water**							
Batch R5769817								
WG3721569-2 DUP		**L2702009-1**						
Fecal Coliforms		>24200	>24200		MPN/100mL	0.0	65	28-APR-22
WG3721569-1 MB								
Fecal Coliforms			<1		MPN/100mL		1	28-APR-22
HG-T-CVAA-WP	**Water**							
Batch R5772321								
WG3724132-7 DUP		**L2701883-3**						
Mercury (Hg)-Total		<0.0000050	<0.000005(	RPD-NA	mg/L	N/A	20	05-MAY-22
WG3724132-6 LCS								
Mercury (Hg)-Total			95.6		%		80-120	05-MAY-22
WG3724132-5 MB								
Mercury (Hg)-Total			<0.000005(		mg/L		0.000005	05-MAY-22
WG3724132-8 MS		**L2701883-4**						
Mercury (Hg)-Total			94.2		%		70-130	05-MAY-22
MET-T-CCMS-WP	**Water**							
Batch R5770831								
WG3721879-6 DUP		**WG3721879-3**						
Aluminum (Al)-Total		0.0257	0.0249		mg/L	3.2	20	02-MAY-22
Arsenic (As)-Total		0.00051	0.00048		mg/L	6.2	20	02-MAY-22
Cadmium (Cd)-Total		0.0000096	0.0000086		mg/L	10	20	02-MAY-22
Calcium (Ca)-Total		86.0	88.0		mg/L	2.4	20	02-MAY-22
Chromium (Cr)-Total		0.00021	0.00020		mg/L	6.7	20	02-MAY-22
Cobalt (Co)-Total		0.00052	0.00052		mg/L	1.2	20	02-MAY-22
Copper (Cu)-Total		0.00053	0.00052		mg/L	2.1	20	02-MAY-22
Iron (Fe)-Total		0.029	0.030		mg/L	2.9	20	02-MAY-22
Lead (Pb)-Total		0.000318	0.000316		mg/L	0.6	20	02-MAY-22
Magnesium (Mg)-Total		38.3	38.4		mg/L	0.4	20	02-MAY-22
Manganese (Mn)-Total		0.168	0.166		mg/L	0.9	20	02-MAY-22
Nickel (Ni)-Total		0.00396	0.00391		mg/L	1.3	20	02-MAY-22
Potassium (K)-Total		26.7	25.9		mg/L	2.8	20	02-MAY-22
Sodium (Na)-Total		142	141		mg/L	0.9	20	02-MAY-22
Zinc (Zn)-Total		0.0333	0.0339		mg/L	1.6	20	02-MAY-22
WG3721879-2 LCS								
Aluminum (Al)-Total			104.0		%		80-120	02-MAY-22
Arsenic (As)-Total			98.7		%		80-120	02-MAY-22

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5770831								
WG3721879-2 LCS								
Cadmium (Cd)-Total			99.7		%		80-120	02-MAY-22
Calcium (Ca)-Total			99.4		%		80-120	02-MAY-22
Chromium (Cr)-Total			101.6		%		80-120	02-MAY-22
Cobalt (Co)-Total			100.5		%		80-120	02-MAY-22
Copper (Cu)-Total			98.9		%		80-120	02-MAY-22
Iron (Fe)-Total			97.5		%		80-120	02-MAY-22
Lead (Pb)-Total			99.5		%		80-120	02-MAY-22
Magnesium (Mg)-Total			102.1		%		80-120	02-MAY-22
Manganese (Mn)-Total			103.4		%		80-120	02-MAY-22
Nickel (Ni)-Total			100.3		%		80-120	02-MAY-22
Potassium (K)-Total			102.9		%		80-120	02-MAY-22
Sodium (Na)-Total			102.9		%		80-120	02-MAY-22
Zinc (Zn)-Total			101.1		%		80-120	02-MAY-22
WG3721879-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	02-MAY-22
Arsenic (As)-Total			<0.00010		mg/L		0.0001	02-MAY-22
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	02-MAY-22
Calcium (Ca)-Total			<0.050		mg/L		0.05	02-MAY-22
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	02-MAY-22
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	02-MAY-22
Copper (Cu)-Total			<0.00050		mg/L		0.0005	02-MAY-22
Iron (Fe)-Total			<0.010		mg/L		0.01	02-MAY-22
Lead (Pb)-Total			<0.000050		mg/L		0.00005	02-MAY-22
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	02-MAY-22
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	02-MAY-22
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	02-MAY-22
Potassium (K)-Total			<0.050		mg/L		0.05	02-MAY-22
Sodium (Na)-Total			<0.050		mg/L		0.05	02-MAY-22
Zinc (Zn)-Total			<0.0030		mg/L		0.003	02-MAY-22
WG3721879-7 MS		**WG3721879-3**						
Aluminum (Al)-Total			100.4		%		70-130	02-MAY-22
Arsenic (As)-Total			94.9		%		70-130	02-MAY-22
Cadmium (Cd)-Total			90.9		%		70-130	02-MAY-22
Calcium (Ca)-Total			N/A	MS-B	%		-	02-MAY-22

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5770831								
WG3721879-7 MS		**WG3721879-3**						
Chromium (Cr)-Total			92.4		%		70-130	02-MAY-22
Cobalt (Co)-Total			90.0		%		70-130	02-MAY-22
Copper (Cu)-Total			85.1		%		70-130	02-MAY-22
Iron (Fe)-Total			87.0		%		70-130	02-MAY-22
Lead (Pb)-Total			94.1		%		70-130	02-MAY-22
Magnesium (Mg)-Total			N/A	MS-B	%		-	02-MAY-22
Manganese (Mn)-Total			N/A	MS-B	%		-	02-MAY-22
Nickel (Ni)-Total			86.7		%		70-130	02-MAY-22
Potassium (K)-Total			N/A	MS-B	%		-	02-MAY-22
Sodium (Na)-Total			N/A	MS-B	%		-	02-MAY-22
Zinc (Zn)-Total			87.5		%		70-130	02-MAY-22
NH3-COL-WP	**Water**							
Batch R5770298								
WG3722490-23 DUP		**L2701922-3**						
Ammonia, Total (as N)		0.034	0.036		mg/L	5.7	20	29-APR-22
WG3722490-22 LCS								
Ammonia, Total (as N)			95.2		%		85-115	29-APR-22
WG3722490-21 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	29-APR-22
WG3722490-24 MS		**L2701922-3**						
Ammonia, Total (as N)			86.1		%		75-125	29-APR-22
NO2-IC-N-WP	**Water**							
Batch R5770055								
WG3721513-7 DUP		**L2701883-2**						
Nitrite (as N)		0.881	0.879		mg/L	0.2	20	28-APR-22
WG3721513-6 LCS								
Nitrite (as N)			106.4		%		90-110	28-APR-22
WG3721513-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	28-APR-22
WG3721513-8 MS		**L2701883-2**						
Nitrite (as N)			N/A	MS-B	%		-	28-APR-22
NO3-IC-N-WP	**Water**							

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-N-WP	**Water**							
Batch R5770055								
WG3721513-7 DUP		**L2701883-2**						
Nitrate (as N)		4.21	4.18		mg/L	0.7	20	28-APR-22
WG3721513-6 LCS								
Nitrate (as N)			99.7		%		90-110	28-APR-22
WG3721513-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	28-APR-22
WG3721513-8 MS		**L2701883-2**						
Nitrate (as N)			N/A	MS-B	%		-	28-APR-22
OG-GRAV-WP	**Water**							
Batch R5771236								
WG3723078-2 LCS								
Oil and Grease			86.8		%		70-130	03-MAY-22
WG3723078-1 MB								
Oil and Grease			<5.0		mg/L		5	03-MAY-22
P-T-COL-WP	**Water**							
Batch R5772323								
WG3723774-3 DUP		**L2702009-1**						
Phosphorus (P)-Total		2.67	2.58		mg/L	3.3	20	05-MAY-22
WG3723774-2 LCS								
Phosphorus (P)-Total			96.4		%		80-120	05-MAY-22
WG3723774-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	05-MAY-22
WG3723774-4 MS		**L2702041-1**						
Phosphorus (P)-Total			N/A	MS-B	%		-	05-MAY-22
PAH-CCME-PPM-WT	**Water**							
Batch R5772918								
WG3724206-2 LCS								
1-Methylnaphthalene			99.1		%		60-130	06-MAY-22
2-Methylnaphthalene			94.0		%		60-130	06-MAY-22
Acenaphthene			103.7		%		60-130	06-MAY-22
Acenaphthylene			98.5		%		60-130	06-MAY-22
Anthracene			99.7		%		60-130	06-MAY-22
Acridine			102.8		%		60-130	06-MAY-22
Benzo(a)anthracene			111.2		%		60-130	06-MAY-22
Benzo(a)pyrene			92.8		%		60-130	06-MAY-22
Benzo(b&j)fluoranthene			94.6		%		60-130	06-MAY-22

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-PPM-WT	**Water**							
Batch R5772918								
WG3724206-2 LCS								
Benzo(g,h,i)perylene			97.7		%		60-130	06-MAY-22
Benzo(k)fluoranthene			103.5		%		60-130	06-MAY-22
Chrysene			106.8		%		60-130	06-MAY-22
Dibenz(a,h)anthracene			105.0		%		60-130	06-MAY-22
Fluoranthene			107.5		%		60-130	06-MAY-22
Fluorene			104.8		%		60-130	06-MAY-22
Indeno(1,2,3-cd)pyrene			105.0		%		60-130	06-MAY-22
Naphthalene			93.6		%		50-130	06-MAY-22
Phenanthrene			107.3		%		60-130	06-MAY-22
Pyrene			108.8		%		60-130	06-MAY-22
Quinoline			111.4		%		60-130	06-MAY-22
WG3724206-1 MB								
1-Methylnaphthalene			<0.000020		mg/L		0.00002	06-MAY-22
2-Methylnaphthalene			<0.000020		mg/L		0.00002	06-MAY-22
Acenaphthene			<0.000020		mg/L		0.00002	06-MAY-22
Acenaphthylene			<0.000020		mg/L		0.00002	06-MAY-22
Anthracene			<0.000010		mg/L		0.00001	06-MAY-22
Acridine			<0.000020		mg/L		0.00002	06-MAY-22
Benzo(a)anthracene			<0.000010		mg/L		0.00001	06-MAY-22
Benzo(a)pyrene			<0.000005(		mg/L		0.000005	06-MAY-22
Benzo(b&j)fluoranthene			<0.000010		mg/L		0.00001	06-MAY-22
Benzo(g,h,i)perylene			<0.000020		mg/L		0.00002	06-MAY-22
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	06-MAY-22
Chrysene			<0.000020		mg/L		0.00002	06-MAY-22
Dibenz(a,h)anthracene			<0.000005(		mg/L		0.000005	06-MAY-22
Fluoranthene			<0.000020		mg/L		0.00002	06-MAY-22
Fluorene			<0.000020		mg/L		0.00002	06-MAY-22
Indeno(1,2,3-cd)pyrene			<0.000010		mg/L		0.00001	06-MAY-22
Naphthalene			<0.000050		mg/L		0.00005	06-MAY-22
Phenanthrene			<0.000050		mg/L		0.00005	06-MAY-22
Pyrene			<0.000010		mg/L		0.00001	06-MAY-22
Quinoline			<0.000020		mg/L		0.00002	06-MAY-22
Surrogate: Naphthalene d8			99.8		%		50-130	06-MAY-22
Surrogate: Phenanthrene d10			106.1		%		60-130	06-MAY-22

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-PPM-WT	**Water**							
Batch R5772918								
WG3724206-1 MB								
Surrogate: Chrysene d12			107.2		%		60-130	06-MAY-22
Surrogate: Acridine d9			101.9		%		60-130	06-MAY-22
PH-WP	**Water**							
Batch R5770219								
WG3722387-5 DUP		**L2702009-1**						
pH		7.26	7.26	J	pH units	0.00	0.2	29-APR-22
WG3722387-2 LCS								
pH			6.99		pH units		6.9-7.1	29-APR-22
PHENOLS-4AAP-WT	**Water**							
Batch R5774786								
WG3724167-2 LCS								
Phenols (4AAP)			102.7		%		85-115	06-MAY-22
WG3724167-1 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	06-MAY-22
SO4-IC-N-WP	**Water**							
Batch R5770055								
WG3721513-7 DUP		**L2701883-2**						
Sulfate (SO4)		25.9	25.9		mg/L	0.0	20	28-APR-22
WG3721513-6 LCS								
Sulfate (SO4)			98.4		%		90-110	28-APR-22
WG3721513-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	28-APR-22
WG3721513-8 MS		**L2701883-2**						
Sulfate (SO4)			103.2		%		75-125	28-APR-22
SOLIDS-TOTSUS-WP	**Water**							
Batch R5770781								
WG3721609-9 DUP		**L2701997-1**						
Total Suspended Solids		12.6	11.8		mg/L	6.6	20	29-APR-22
WG3721609-8 LCS								
Total Suspended Solids			94.0		%		85-115	29-APR-22
WG3721609-7 MB								
Total Suspended Solids			<3.0		mg/L		3	29-APR-22
TC,EC10-QT97-WP	**Water**							

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TC,EC10-QT97-WP	**Water**							
Batch R5769816								
WG3721580-2 DUP		**L2702009-1**						
Total Coliforms		>24200	>24200		MPN/100mL	0.0	65	28-APR-22
Escherichia Coli		>24200	>24200		MPN/100mL	0.0	65	28-APR-22
WG3721580-1 MB								
Total Coliforms			<1		MPN/100mL		1	28-APR-22
Escherichia Coli			<1		MPN/100mL		1	28-APR-22

Quality Control Report

Workorder: L2702009 Report Date: 09-MAY-22

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L2702009 Report Date: 09-MAY-22

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	27-APR-22 10:00	29-APR-22 12:00	0.25	50	hours	EHTR-FM
Bacteriological Tests							
Fecal coliforms, 1:10 dilution by QT97							
	1	27-APR-22 10:00	28-APR-22 17:05	30	31	hours	EHTL
Total and E. coli, 1:10 dilution by QT97							
	1	27-APR-22 10:00	28-APR-22 17:05	30	31	hours	EHTL

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2702009 were received on 28-APR-22 13:06.

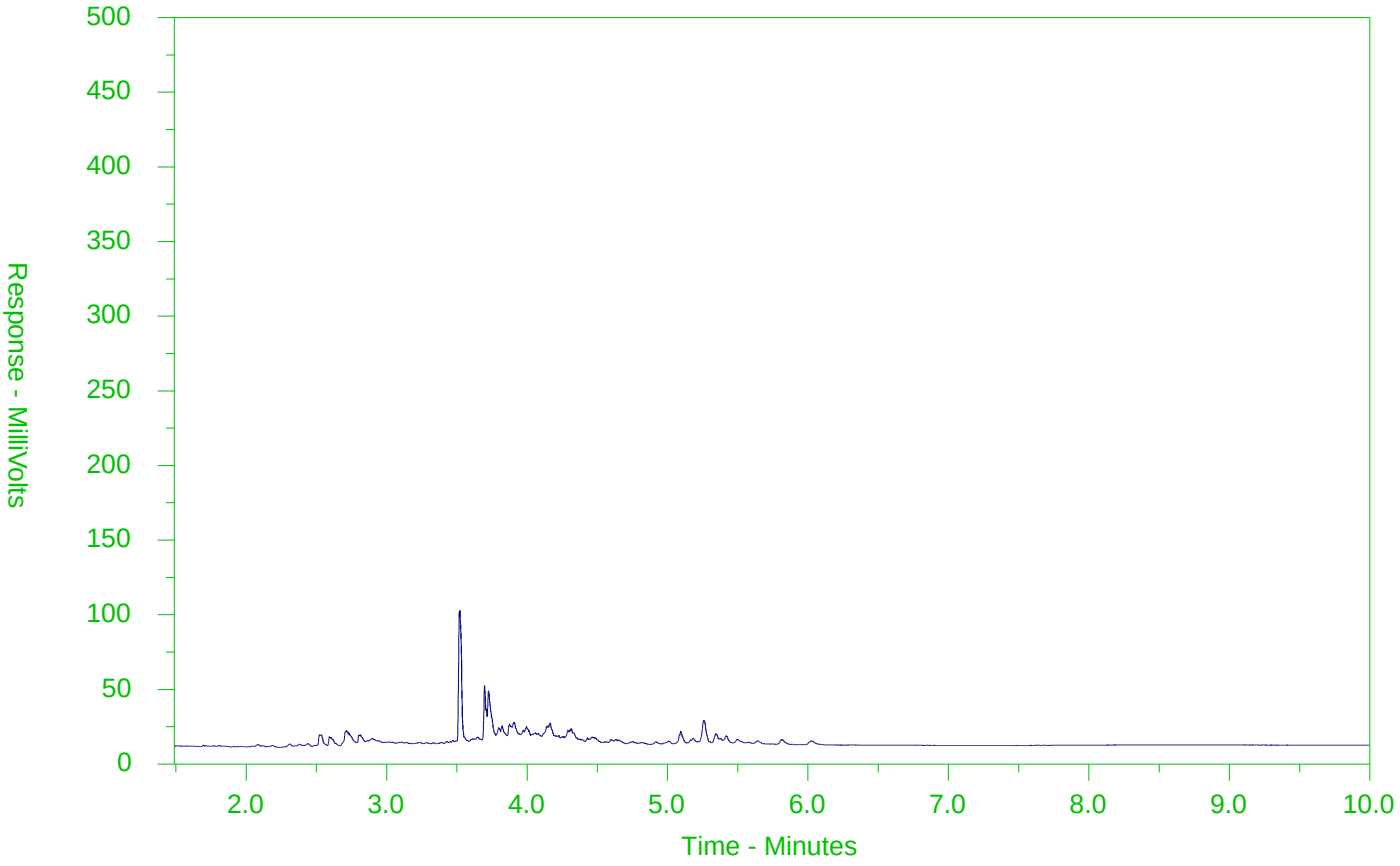
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2702009-1
Client Sample ID: RANKIN INLET WWTP - EFFLUENT



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2702009-COFC

COC Number: 15 -

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply
Company:	Nunavut - CGS - Rankin Inlet W8133	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Steve Fitzpatrick	Quality Control (QC) Report with Report ☑ YES ☐ NO	PRIORITY (Business Days): 4 day [P4] ☐ / 3 day [P3] ☐ / 2 day [P2] ☐ — EMERGENCY: 1 Business day [E1] ☐ / Same Day, Weekend or Statutory holiday [E0] ☐
Phone:	867-645-8172	☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Street:	Box 490	Email 1 or Fax: kivalliqwatersamples@gov.nu.ca	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Rankin Inlet, NU	Email 2: sfitzpatrick1@gov.nu.ca	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	X0C 0G0	Email 3: jstrickland@gov.nu.ca	
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:	Nunavut CGS W8133	Email 1 or Fax: smerkosak@gov.nu.ca	
Contact:		Email 2:	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	W8133	AFE/Cost Center:	PO#:
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: Craig Riddell	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BTEX F1-F4-WP	PAH-PANH-WP	NUNAVDE-WW-GRP1-WP	F-IC-N-WP	TC-EC-QT97-WP	Number of Containers
					P	P	P	P		
	Rankin Inlet WWTP - Effluent	27/04/22	10:00	Waste						15

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☑ YES ☐ NO	Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)	Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human drinking water use? ☑ YES ☐ NO	MB-CH-PWS-WP THMs (treated water only) HAAs (treated water only)	Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐ Cooling Initiated ☐
		INITIAL COOLER TEMPERATURES °C: 7.9 — FINAL COOLER TEMPERATURES °C:

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Bill Ross	Date: 27/04/22	Time: 10:00	Received by: D.A	Date: APR 28 2022	Time: 1:06pm	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — OCTOBER 2015 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Nunavut Community & Government Services - Rankin Inlet
ATTN: SIMON DOIRON
BOX 490
RANKIN INLET NU X0C 0G0

Date Received: 12-FEB-22
Report Date: 25-FEB-22 15:57 (MT)
Version: FINAL

Client Phone: 867-645-8155

Certificate of Analysis

Lab Work Order #: L2685400

Project P.O. #: NOT SUBMITTED
Job Reference: RANKIN INLET WWTP - MONTHLY EFFLUENT
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2685400-1 RANKIN INLET WWTP - EFFLUENT							
Sampled By: CLIENT on 09-FEB-22 @ 10:30							
Matrix: WASTE WATER							
BTEX							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		14-FEB-22	R5722896
Toluene	<0.0010		0.0010	mg/L		14-FEB-22	R5722896
Ethyl benzene	<0.00050		0.00050	mg/L		14-FEB-22	R5722896
o-Xylene	<0.00050		0.00050	mg/L		14-FEB-22	R5722896
m+p-Xylenes	<0.00040		0.00040	mg/L		14-FEB-22	R5722896
F1 (C6-C10)	<0.10		0.10	mg/L		14-FEB-22	R5722896
Surrogate: 4-Bromofluorobenzene (SS)	86.2		70-130	%		14-FEB-22	R5722896
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		18-FEB-22	
F2-Naphth	<0.10		0.10	mg/L		18-FEB-22	
F3-PAH	1.69		0.25	mg/L		18-FEB-22	
Total Hydrocarbons (C6-C50)	2.65		0.38	mg/L		18-FEB-22	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		15-FEB-22	
Miscellaneous Parameters							
Fluoride (F)	0.141		0.020	mg/L		12-FEB-22	R5725436
Phenols (4AAP)	0.0103		0.0010	mg/L		25-FEB-22	R5729634
Total and E. coli, 1:10 dilution by QT97							
Total Coliforms	>24200	PEHR	10	MPN/100mL		12-FEB-22	R5721638
Escherichia Coli	>24200	PEHR	10	MPN/100mL		12-FEB-22	R5721638
F2-F4 (O.Reg.153/04)							
F2 (C10-C16)	<100		100	ug/L	16-FEB-22	17-FEB-22	R5727293
F3 (C16-C34)	1690		250	ug/L	16-FEB-22	17-FEB-22	R5727293
F4 (C34-C50)	950		250	ug/L	16-FEB-22	17-FEB-22	R5727293
Chrom. to baseline at nC50	YES				16-FEB-22	17-FEB-22	R5727293
Surrogate: 2-Bromobenzotrifluoride	102.2		60-140	%	16-FEB-22	17-FEB-22	R5727293
CCME PAHs in mg/L							
1-Methylnaphthalene	0.000045		0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
2-Methylnaphthalene	0.000060		0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
Acenaphthene	<0.000020	DLM	0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
Acenaphthylene	<0.000020	DLM	0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
Anthracene	<0.000075	DLM	0.000075	mg/L	16-FEB-22	18-FEB-22	R5725618
Acridine	<0.000083	DLM	0.000083	mg/L	16-FEB-22	18-FEB-22	R5725618
Benzo(a)anthracene	<0.000020	DLM	0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
Benzo(a)pyrene	<0.000020	DLM	0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
Benzo(b&j)fluoranthene	<0.000020	DLM	0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
Benzo(g,h,i)perylene	<0.000037	DLM	0.000037	mg/L	16-FEB-22	18-FEB-22	R5725618
Benzo(k)fluoranthene	<0.000020	DLM	0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
Chrysene	<0.000020	DLM	0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
Dibenz(a,h)anthracene	<0.000061	DLM	0.000061	mg/L	16-FEB-22	18-FEB-22	R5725618
Fluoranthene	<0.000020	DLM	0.000020	mg/L	16-FEB-22	18-FEB-22	R5725618
Fluorene	<0.00012	DLM	0.00012	mg/L	16-FEB-22	18-FEB-22	R5725618
Indeno(1,2,3-cd)pyrene	<0.00078	DLM	0.00078	mg/L	16-FEB-22	18-FEB-22	R5725618
Naphthalene	<0.000050	DLM	0.000050	mg/L	16-FEB-22	18-FEB-22	R5725618
Phenanthrene	<0.000050	DLM	0.000050	mg/L	16-FEB-22	18-FEB-22	R5725618
Pyrene	<0.000029	DLM	0.000029	mg/L	16-FEB-22	18-FEB-22	R5725618
Quinoline	<0.00023	DLM	0.00023	mg/L	16-FEB-22	18-FEB-22	R5725618
B(a)P Total Potency Equivalent	<0.000160		0.00016	mg/L	16-FEB-22	18-FEB-22	R5725618
Surrogate: Naphthalene d8	133.6	SURR-ND	50-130	%	16-FEB-22	18-FEB-22	R5725618
Surrogate: Phenanthrene d10	105.0		60-130	%	16-FEB-22	18-FEB-22	R5725618
Surrogate: Chrysene d12	154.3	SURR-ND	60-130	%	16-FEB-22	18-FEB-22	R5725618

* 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
L2685400-1 RANKIN INLET WWTP - EFFLUENT							
Sampled By: CLIENT on 09-FEB-22 @ 10:30							
Matrix: WASTE WATER							
CCME PAHs in mg/L							
Surrogate: Acridine d9	121.7		60-130	%	16-FEB-22	18-FEB-22	R5725618
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	173		1.2	mg/L		15-FEB-22	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		15-FEB-22	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		15-FEB-22	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	142		1.0	mg/L		15-FEB-22	R5724059
Ammonia by colour							
Ammonia, Total (as N)	9.73		0.20	mg/L		14-FEB-22	R5724416
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	175		50	mg/L		12-FEB-22	R5727246
Carbonaceous BOD							
BOD Carbonaceous	149		50	mg/L		12-FEB-22	R5727246
Chloride in Water by IC							
Chloride (Cl)	66.8		0.50	mg/L		12-FEB-22	R5725436
Conductivity							
Conductivity	586		1.0	umhos/cm		15-FEB-22	R5724059
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	>24200	PEHR	10	MPN/100mL		12-FEB-22	R5721637
Hardness Calculated							
Hardness (as CaCO3)	117	HTC	0.20	mg/L		17-FEB-22	
Mercury Total							
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	16-FEB-22	16-FEB-22	R5725762
Nitrate in Water by IC							
Nitrate (as N)	0.020		0.020	mg/L		12-FEB-22	R5725436
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		16-FEB-22	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		12-FEB-22	R5725436
Oil & Grease - Gravimetric							
Oil and Grease	32.9		5.0	mg/L		16-FEB-22	R5727621
Phosphorus, Total							
Phosphorus (P)-Total	4.45		0.030	mg/L		16-FEB-22	R5725165
Sulfate in Water by IC							
Sulfate (SO4)	31.1		0.30	mg/L		12-FEB-22	R5725436
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.139		0.0030	mg/L	15-FEB-22	16-FEB-22	R5727057
Arsenic (As)-Total	0.00109		0.00010	mg/L	15-FEB-22	16-FEB-22	R5727057
Cadmium (Cd)-Total	0.0000962		0.0000050	mg/L	15-FEB-22	16-FEB-22	R5727057
Calcium (Ca)-Total	32.5		0.050	mg/L	15-FEB-22	16-FEB-22	R5727057
Chromium (Cr)-Total	0.00303		0.00010	mg/L	15-FEB-22	16-FEB-22	R5727057
Cobalt (Co)-Total	0.00026		0.00010	mg/L	15-FEB-22	16-FEB-22	R5727057
Copper (Cu)-Total	0.244		0.00050	mg/L	15-FEB-22	16-FEB-22	R5727057
Iron (Fe)-Total	3.32		0.010	mg/L	15-FEB-22	16-FEB-22	R5727057
Lead (Pb)-Total	0.00106		0.000050	mg/L	15-FEB-22	16-FEB-22	R5727057
Magnesium (Mg)-Total	8.75		0.0050	mg/L	15-FEB-22	16-FEB-22	R5727057
Manganese (Mn)-Total	0.0506		0.00010	mg/L	15-FEB-22	16-FEB-22	R5727057
Nickel (Ni)-Total	0.00435		0.00050	mg/L	15-FEB-22	16-FEB-22	R5727057
Potassium (K)-Total	10.7		0.050	mg/L	15-FEB-22	16-FEB-22	R5727057

* 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
L2685400-1 RANKIN INLET WWTP - EFFLUENT							
Sampled By: CLIENT on 09-FEB-22 @ 10:30							
Matrix: WASTE WATER							
Total Metals in Water by CRC ICPMS							
Sodium (Na)-Total	40.7		0.050	mg/L	15-FEB-22	16-FEB-22	R5727057
Zinc (Zn)-Total	0.174		0.0030	mg/L	15-FEB-22	16-FEB-22	R5727057
Total Organic Carbon by Combustion							
Total Organic Carbon	114		5.0	mg/L		16-FEB-22	R5727223
Total Suspended Solids							
Total Suspended Solids	188		3.0	mg/L		14-FEB-22	R5727036
pH							
pH	7.16		0.10	pH units		15-FEB-22	R5724059

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B

Samples are diluted and seeded, have TCMP added to inhibit nitrogenous demands, and then are incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B

Samples are diluted and seeded and then incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

C-TOC-HTC-WP	Water	Total Organic Carbon by Combustion	APHA 5310 B-WP

Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

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

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

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.

F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

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

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-WT	Water	F2-F4 (O.Reg.153/04)	MOE DECPH-E3421/CCME TIER 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, 2001.

FC10-QT97-WP	Water	Fecal coliforms, 1:10 dilution by QT97	APHA 9223B QT97

Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Substrate Coliform Test". Fecal (thermotolerant) coliform bacteria are determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 44.5 +/- 0.2 degrees C for 18 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.

HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-T-CVAA-WP	Water	Mercury Total	EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod.)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

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.

NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

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

NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

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

OG-GRAV-WP	Water	Oil & Grease - Gravimetric	EPA 1664 (modified)

Water samples are acidified and extracted with hexane; the hexane extract is collected in a pre-weighed vial. The solvent is evaporated and Total Oil & Grease is determined from the weight of the residue in the vial.

P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

PAH-CCME-PPM-WT	Water	CCME PAHs in mg/L	EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.			
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-ED	Water	Phenols (4AAP)	EPA 9066 AUTO-DISTILL-COLORIMETRIC
This automated method is based on the distillation of phenol and subsequent reaction of the distillate with an oxidizing agent (alkaline potassium ferricyanide), and 4-aminoantipyrine to form a red complex which is measured at 505 nm. The method will include ortho and meta-substituted phenols, and is collectively named 4AAP phenols.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
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.			
TC,EC10-QT97-WP	Water	Total and E. coli, 1:10 dilution by QT97	APHA 9223B QT97
Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Susbtrate Coliform Test". Total coliforms and Eschericia coli bacteria are simultaneously determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, 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 wwt - 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.

Quality Control Report

Workorder: L2685400 Report Date: 25-FEB-22

Client: Nunavut Community & Government Services - Rankin Inlet
BOX 490
RANKIN INLET NU X0C 0G0
Contact: SIMON DOIRON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5724059								
WG3696230-9 LCS								
Alkalinity, Total (as CaCO3)			99.0		%		85-115	15-FEB-22
WG3696230-6 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	15-FEB-22
BOD-CBOD-WP	**Water**							
Batch R5727246								
WG3695467-2 LCS								
BOD Carbonaceous			97.9		%		85-115	12-FEB-22
WG3695467-1 MB								
BOD Carbonaceous			<2.0		mg/L		2	12-FEB-22
BOD-WP	**Water**							
Batch R5727246								
WG3695467-2 LCS								
Biochemical Oxygen Demand			96.2		%		85-115	12-FEB-22
WG3695467-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	12-FEB-22
BTEXS+F1-HSMS-WP	**Water**							
Batch R5722896								
WG3695762-2 LCS								
Benzene			90.9		%		70-130	14-FEB-22
Toluene			85.5		%		70-130	14-FEB-22
Ethyl benzene			84.1		%		70-130	14-FEB-22
o-Xylene			89.5		%		70-130	14-FEB-22
m+p-Xylenes			90.4		%		70-130	14-FEB-22
WG3695762-3 LCS								
F1 (C6-C10)			95.9		%		70-130	14-FEB-22
WG3695762-1 MB								
Benzene			<0.00050		mg/L		0.0005	14-FEB-22
Toluene			<0.0010		mg/L		0.001	14-FEB-22
Ethyl benzene			<0.00050		mg/L		0.0005	14-FEB-22
o-Xylene			<0.00050		mg/L		0.0005	14-FEB-22
m+p-Xylenes			<0.00040		mg/L		0.0004	14-FEB-22
F1 (C6-C10)			<0.10		mg/L		0.1	14-FEB-22
Surrogate: 4-Bromofluorobenzene (SS)			85.4		%		70-130	14-FEB-22
C-TOC-HTC-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-TOC-HTC-WP	**Water**							
Batch R5727223								
WG3697263-2 LCS								
Total Organic Carbon			105.7		%		80-120	16-FEB-22
WG3697263-1 MB								
Total Organic Carbon			<0.50		mg/L		0.5	16-FEB-22
CL-IC-N-WP	**Water**							
Batch R5725436								
WG3695500-2 LCS								
Chloride (Cl)			99.1		%		90-110	12-FEB-22
WG3695500-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	12-FEB-22
EC-WP	**Water**							
Batch R5724059								
WG3696230-8 LCS								
Conductivity			99.8		%		90-110	15-FEB-22
WG3696230-6 MB								
Conductivity			<1.0		umhos/cm		1	15-FEB-22
F-IC-N-WP	**Water**							
Batch R5725436								
WG3695500-2 LCS								
Fluoride (F)			102.7		%		90-110	12-FEB-22
WG3695500-1 MB								
Fluoride (F)			<0.020		mg/L		0.02	12-FEB-22
F2-F4-WT	**Water**							
Batch R5727293								
WG3696713-2 LCS								
F2 (C10-C16)			92.9		%		70-130	17-FEB-22
F3 (C16-C34)			89.7		%		70-130	17-FEB-22
F4 (C34-C50)			102.2		%		70-130	17-FEB-22
WG3696713-1 MB								
F2 (C10-C16)			<100		ug/L		100	17-FEB-22
F3 (C16-C34)			<250		ug/L		250	17-FEB-22
F4 (C34-C50)			<250		ug/L		250	17-FEB-22
Surrogate: 2-Bromobenzotrifluoride			85.8		%		60-140	17-FEB-22
FC10-QT97-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
FC10-QT97-WP	**Water**							
Batch R5721637								
WG3695539-2 DUP		**L2685400-1**						
Fecal Coliforms		>24200	>24200		MPN/100mL	0.0	65	12-FEB-22
WG3695539-1 MB								
Fecal Coliforms			<1		MPN/100mL		1	12-FEB-22
HG-T-CVAA-WP	**Water**							
Batch R5725762								
WG3696955-2 LCS								
Mercury (Hg)-Total			101.2		%		80-120	16-FEB-22
WG3696955-1 MB								
Mercury (Hg)-Total			<0.000005		mg/L		0.000005	16-FEB-22
MET-T-CCMS-WP	**Water**							
Batch R5727057								
WG3695833-2 LCS								
Aluminum (Al)-Total			105.7		%		80-120	16-FEB-22
Arsenic (As)-Total			102.4		%		80-120	16-FEB-22
Cadmium (Cd)-Total			102.2		%		80-120	16-FEB-22
Calcium (Ca)-Total			101.4		%		80-120	16-FEB-22
Chromium (Cr)-Total			102.5		%		80-120	16-FEB-22
Cobalt (Co)-Total			101.8		%		80-120	16-FEB-22
Copper (Cu)-Total			101.0		%		80-120	16-FEB-22
Iron (Fe)-Total			97.7		%		80-120	16-FEB-22
Lead (Pb)-Total			99.5		%		80-120	16-FEB-22
Magnesium (Mg)-Total			114.9		%		80-120	16-FEB-22
Manganese (Mn)-Total			103.9		%		80-120	16-FEB-22
Nickel (Ni)-Total			101.4		%		80-120	16-FEB-22
Potassium (K)-Total			100.3		%		80-120	16-FEB-22
Sodium (Na)-Total			107.0		%		80-120	16-FEB-22
Zinc (Zn)-Total			103.7		%		80-120	16-FEB-22
WG3695833-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	16-FEB-22
Arsenic (As)-Total			<0.00010		mg/L		0.0001	16-FEB-22
Cadmium (Cd)-Total			<0.000005		mg/L		0.000005	16-FEB-22
Calcium (Ca)-Total			<0.050		mg/L		0.05	16-FEB-22
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	16-FEB-22
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	16-FEB-22
Copper (Cu)-Total			<0.00050		mg/L		0.0005	16-FEB-22

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5727057								
WG3695833-1 MB								
Iron (Fe)-Total			<0.010		mg/L		0.01	16-FEB-22
Lead (Pb)-Total			<0.000050		mg/L		0.00005	16-FEB-22
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	16-FEB-22
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	16-FEB-22
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	16-FEB-22
Potassium (K)-Total			<0.050		mg/L		0.05	16-FEB-22
Sodium (Na)-Total			<0.050		mg/L		0.05	16-FEB-22
Zinc (Zn)-Total			<0.0030		mg/L		0.003	16-FEB-22
NH3-COL-WP	**Water**							
Batch R5724416								
WG3696464-14 LCS								
Ammonia, Total (as N)			97.2		%		85-115	14-FEB-22
WG3696464-13 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	14-FEB-22
NO2-IC-N-WP	**Water**							
Batch R5725436								
WG3695500-2 LCS								
Nitrite (as N)			98.1		%		90-110	12-FEB-22
WG3695500-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	12-FEB-22
NO3-IC-N-WP	**Water**							
Batch R5725436								
WG3695500-2 LCS								
Nitrate (as N)			99.5		%		90-110	12-FEB-22
WG3695500-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	12-FEB-22
OG-GRAV-WP	**Water**							
Batch R5727621								
WG3697316-2 LCS								
Oil and Grease			99.3		%		70-130	16-FEB-22
WG3697316-1 MB								
Oil and Grease			<5.0		mg/L		5	16-FEB-22
P-T-COL-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-WP	**Water**							
Batch R5725165								
WG3696377-6 LCS								
Phosphorus (P)-Total			95.4		%		80-120	16-FEB-22
WG3696377-5 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	16-FEB-22
PAH-CCME-PPM-WT	**Water**							
Batch R5725618								
WG3696713-2 LCS								
1-Methylnaphthalene			101.2		%		60-130	16-FEB-22
2-Methylnaphthalene			98.3		%		60-130	16-FEB-22
Acenaphthene			96.0		%		60-130	16-FEB-22
Acenaphthylene			93.1		%		60-130	16-FEB-22
Anthracene			91.4		%		60-130	16-FEB-22
Acridine			96.1		%		60-130	16-FEB-22
Benzo(a)anthracene			99.8		%		60-130	16-FEB-22
Benzo(a)pyrene			83.4		%		60-130	16-FEB-22
Benzo(b&j)fluoranthene			78.2		%		60-130	16-FEB-22
Benzo(g,h,i)perylene			109.8		%		60-130	16-FEB-22
Benzo(k)fluoranthene			95.7		%		60-130	16-FEB-22
Chrysene			109.2		%		60-130	16-FEB-22
Dibenz(a,h)anthracene			96.2		%		60-130	16-FEB-22
Fluoranthene			108.3		%		60-130	16-FEB-22
Fluorene			100.8		%		60-130	16-FEB-22
Indeno(1,2,3-cd)pyrene			118.5		%		60-130	16-FEB-22
Naphthalene			91.3		%		50-130	16-FEB-22
Phenanthrene			106.3		%		60-130	16-FEB-22
Pyrene			108.1		%		60-130	16-FEB-22
Quinoline			117.6		%		60-130	16-FEB-22
WG3696713-1 MB								
1-Methylnaphthalene			<0.000020		mg/L		0.00002	16-FEB-22
2-Methylnaphthalene			<0.000020		mg/L		0.00002	16-FEB-22
Acenaphthene			<0.000020		mg/L		0.00002	16-FEB-22
Acenaphthylene			<0.000020		mg/L		0.00002	16-FEB-22
Anthracene			<0.000010		mg/L		0.00001	16-FEB-22
Acridine			<0.000020		mg/L		0.00002	16-FEB-22
Benzo(a)anthracene			<0.000010		mg/L		0.00001	16-FEB-22
Benzo(a)pyrene			<0.000005(		mg/L		0.000005	16-FEB-22

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-PPM-WT	**Water**							
Batch R5725618								
WG3696713-1 MB								
Benzo(b&j)fluoranthene			<0.000010		mg/L		0.00001	16-FEB-22
Benzo(g,h,i)perylene			<0.000020		mg/L		0.00002	16-FEB-22
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	16-FEB-22
Chrysene			<0.000020		mg/L		0.00002	16-FEB-22
Dibenz(a,h)anthracene			<0.000005(		mg/L		0.000005	16-FEB-22
Fluoranthene			<0.000020		mg/L		0.00002	16-FEB-22
Fluorene			<0.000020		mg/L		0.00002	16-FEB-22
Indeno(1,2,3-cd)pyrene			<0.000010		mg/L		0.00001	16-FEB-22
Naphthalene			<0.000050		mg/L		0.00005	16-FEB-22
Phenanthrene			<0.000050		mg/L		0.00005	16-FEB-22
Pyrene			<0.000010		mg/L		0.00001	16-FEB-22
Quinoline			<0.000020		mg/L		0.00002	16-FEB-22
Surrogate: Naphthalene d8			103.1		%		50-130	16-FEB-22
Surrogate: Phenanthrene d10			103.9		%		60-130	16-FEB-22
Surrogate: Chrysene d12			94.8		%		60-130	16-FEB-22
Surrogate: Acridine d9			92.3		%		60-130	16-FEB-22
PH-WP	**Water**							
Batch R5724059								
WG3696230-7 LCS								
pH			6.99		pH units		6.9-7.1	15-FEB-22
PHENOLS-4AAP-ED	**Water**							
Batch R5729634								
WG3700152-2 LCS								
Phenols (4AAP)			90.0		%		85-115	25-FEB-22
WG3700152-1 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	25-FEB-22
SO4-IC-N-WP	**Water**							
Batch R5725436								
WG3695500-2 LCS								
Sulfate (SO4)			100.6		%		90-110	12-FEB-22
WG3695500-1 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	12-FEB-22
SOLIDS-TOTSUS-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TOTSUS-WP	**Water**							
Batch R5727036								
WG3695703-2 LCS								
Total Suspended Solids			92.8		%		85-115	14-FEB-22
WG3695703-1 MB								
Total Suspended Solids			<3.0		mg/L		3	14-FEB-22
TC,EC10-QT97-WP	**Water**							
Batch R5721638								
WG3695540-2 DUP		**L2685400-1**						
Total Coliforms		>24200	>24200		MPN/100mL	0.0	65	12-FEB-22
Escherichia Coli		>24200	>24200		MPN/100mL	0.0	65	12-FEB-22
WG3695540-1 MB								
Total Coliforms			<1		MPN/100mL		1	12-FEB-22
Escherichia Coli			<1		MPN/100mL		1	12-FEB-22

Quality Control Report

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	09-FEB-22 10:30	15-FEB-22 11:00	0.25	144	hours	EHTR-FM
Bacteriological Tests							
Fecal coliforms, 1:10 dilution by QT97							
	1	09-FEB-22 10:30	12-FEB-22 14:10	30	76	hours	EHTR
Total and E. coli, 1:10 dilution by QT97							
	1	09-FEB-22 10:30	12-FEB-22 14:10	30	76	hours	EHTR
Aggregate Organics							
Biochemical Oxygen Demand (BOD)							
	1	09-FEB-22 10:30	12-FEB-22 07:00	48	68	hours	EHTR
Carbonaceous BOD							
	1	09-FEB-22 10:30	12-FEB-22 07:00	48	68	hours	EHTR

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2685400 were received on 12-FEB-22 08:30.

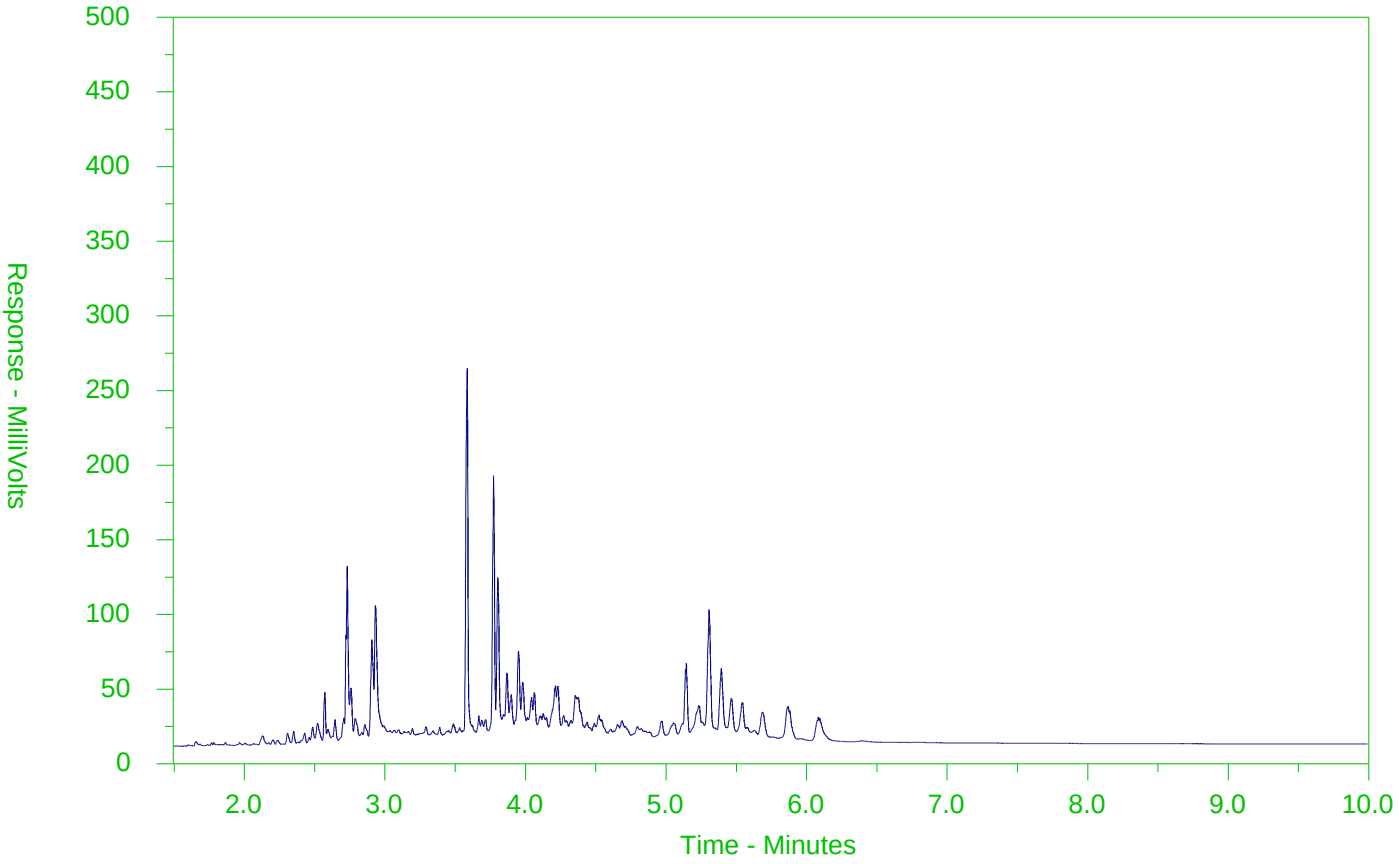
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2685400-1
Client Sample ID: RANKIN INLET WWTP - EFFLUENT



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

ALS

Chain of Custody / Analytical Request ...
Canada Toll Free: 1 800 668 9...
www.alsglobal.com

L2685400-COFC

Page ___ of ___

Report To	
Company:	Nunavut CGS - Rankin Inlet (W8133)
Contact:	SIMON DOIRON
Address:	Box 490
	Rankin Inlet , NU, X0C 0G0
Phone:	867-645-8155 Cell#:
Invoice To	Same as Report ? ☑ Yes ☐ No
Hardcopy of Invoice with Report?	☐ Yes ☐ No
Company:	
Contact:	
Address:	
Phone:	Fax:
Lab Work Order # (lab use only)	

Report Format / Distribution	
☑ Standard ☐ Other	
☑ PDF ☐ Excel ☐ Digital ☐ Fax	
Email 1:	sdoiron@gov.nu.ca
Email 2:	mlusty@gov.nu.ca
Email 3:	
Client / Project Information	
Job #:	Rankin Inlet WWTP- Monthly Effluent
PO / AFE:	
LSD:	
Quote #:	
ALS Contact:	Craig Riddell
Sampled By:	Simon Doiron

...lysis subject to availability)
...Business Days)
○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date Sampled	Time Sampled	Sample Type	BTX,F1-F4-WP	PAH,PANH-WP	NUNAVUT-WW-GRP1-WP	F-IC-N-WP	TC,EC-QT97-WP	Number of Containers
	Rankin Inlet WWTP - Effluent	09/02/22	10:30	Waste	x	x	x	x	x	15
	**NOTE TO LOGIN - remove metals Reporting Code WP-NUNAVUT-WW-GRP1									
	So all ICP-MS metals report.									

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Nunavut-WW-GRP1-WP pkg includes 1 L BOD/CBOD, 1 L Routine, 250 ml Metals , 40 ml Mercury Vial, 250 ml Amber Nutrient , 250 ml Amber Phenols, 2 x 250 ml Amber Oil & Grease , 250 ml Bacteria (9 bottles) + 5 Vials for BTX,F1-F4 and 1 L Amber for PAH's = Total of 15 Bottles per sample.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Bill Ross	09/02/22	10:30	NMA	FEB 12 2022	0830	6.4 °C	NMA	FEB 12 2022		

Nunavut Community & Government Services - Rankin Inlet
ATTN: STEVE FITZPATRICK (Rankin Inlet)
P.O. Box 490
Rankin Inlet NU X0C 0G0

Date Received: 30-JUN-22
Report Date: 21-JUL-22 14:03 (MT)
Version: FINAL

Client Phone: 867-645-8172

Certificate of Analysis

Lab Work Order #: L2719546

Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ANALYTICAL REPORT

Physical Tests (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2719546-1 Sampled Date: 29-JUN-22 Sampled Time: 10:30 Sample ID: RANKIN INLET WWTP - EFFLUENT
Conductivity	umhos/cm	-	-	421
Hardness (as CaCO3)	mg/L	-	-	81.9 HTC
pH	pH units	7.00-10.5	-	7.24
Total Suspended Solids	mg/L	-	-	111

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Anions and Nutrients (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2719546-1 Sampled Date: 29-JUN-22 Sampled Time: 10:30 Sample ID: RANKIN INLET WWTP - EFFLUENT
Alkalinity, Total (as CaCO3)	mg/L	-	-	111
Ammonia, Total (as N)	mg/L	-	-	6.5
Bicarbonate (HCO3)	mg/L	-	-	136
Carbonate (CO3)	mg/L	-	-	<0.60
Chloride (Cl)	mg/L	250	-	45.2
Hydroxide (OH)	mg/L	-	-	<0.34
Nitrate and Nitrite as N	mg/L	-	10	<0.070
Nitrate (as N)	mg/L	-	10	<0.020
Nitrite (as N)	mg/L	-	1	<0.010
Phosphorus (P)-Total	mg/L	-	-	2.61
Sulfate (SO4)	mg/L	500	-	20.5

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Organic / Inorganic Carbon (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2719546-1 Sampled Date: 29-JUN-22 Sampled Time: 10:30 Sample ID: RANKIN INLET WWTP - EFFLUENT
Total Organic Carbon	mg/L	-	-	61.3

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Bacteriological Tests (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2719546-1 Sampled Date: 29-JUN-22 Sampled Time: 10:30 Sample ID: RANKIN INLET WWTP - EFFLUENT
Escherichia Coli	MPN/100mL	-	0	>24200 PEHT
Fecal Coliforms	MPN/100mL	-	-	>24200 PEHT
Total Coliforms	MPN/100mL	-	0	>24200 PEHT

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Total Metals (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2719546-1 Sampled Date: 29-JUN-22 Sampled Time: 10:30 Sample ID: RANKIN INLET WWTP - EFFLUENT
Aluminum (Al)-Total	mg/L	0.1	2.9	0.151
Arsenic (As)-Total	mg/L	-	0.01	0.00145
Cadmium (Cd)-Total	mg/L	-	0.005	0.0000694
Calcium (Ca)-Total	mg/L	-	-	24.5
Chromium (Cr)-Total	mg/L	-	0.05	0.00105
Cobalt (Co)-Total	mg/L	-	-	0.00034
Copper (Cu)-Total	mg/L	1	2	0.110
Iron (Fe)-Total	mg/L	0.3	-	1.89
Lead (Pb)-Total	mg/L	-	0.005	0.000816
Magnesium (Mg)-Total	mg/L	-	-	5.04
Manganese (Mn)-Total	mg/L	0.02	0.12	0.0359
Mercury (Hg)-Total	mg/L	-	0.001	0.0000113
Nickel (Ni)-Total	mg/L	-	-	0.00533
Potassium (K)-Total	mg/L	-	-	7.56
Sodium (Na)-Total	mg/L	200	-	29.7
Zinc (Zn)-Total	mg/L	5	-	0.140

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Aggregate Organics (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2719546-1 Sampled Date: 29-JUN-22 Sampled Time: 10:30 Sample ID: RANKIN INLET WWTP - EFFLUENT
Biochemical Oxygen Demand	mg/L	-	-	104
BOD Carbonaceous	mg/L	-	-	94
Oil and Grease	mg/L	-	-	19.2
Phenols (4AAP)	mg/L	-	-	0.0108 DLM

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Volatile Organic Compounds (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2719546-1 Sampled Date: 29-JUN-22 Sampled Time: 10:30 Sample ID: RANKIN INLET WWTP - EFFLUENT
Benzene	mg/L	-	0.005	<0.00050
Ethyl benzene	mg/L	0.0016	0.14	<0.00050
Toluene	mg/L	0.024	0.06	0.0027
o-Xylene	mg/L	-	-	<0.00050
m+p-Xylenes	mg/L	-	-	<0.00040
Xylenes (Total)	mg/L	0.02	0.09	<0.00064
F1 (C6-C10)	mg/L	-	-	<0.10
F1-BTEX	mg/L	-	-	<0.10
F2-Naphth	mg/L	-	-	<0.10
F3-PAH	mg/L	-	-	0.76
Total Hydrocarbons (C6-C50)	mg/L	-	-	1.15
Surrogate: 4-Bromofluorobenzene (SS)	%	-	-	100.0

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Hydrocarbons (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2719546-1 Sampled Date: 29-JUN-22 Sampled Time: 10:30 Sample ID: RANKIN INLET WWTP - EFFLUENT
F2 (C10-C16)	ug/L	-	-	<100
F3 (C16-C34)	ug/L	-	-	760
F4 (C34-C50)	ug/L	-	-	400
Chrom. to baseline at nC50	No Unit	-	-	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	102.3

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Polycyclic Aromatic Hydrocarbons (WATER)

				ALS ID	L2719546-1
				Sampled Date	29-JUN-22
				Sampled Time	10:30
				Sample ID	RANKIN INLET WWTP - EFFLUENT
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Acenaphthene	mg/L	-	-		<0.000020
Acenaphthylene	mg/L	-	-		<0.000020
Acridine	mg/L	-	-		<0.000020
Anthracene	mg/L	-	-		0.000030
Benzo(a)anthracene	mg/L	-	-		<0.000010
Benzo(a)pyrene	mg/L	-	0.00004		<0.0000050
Benzo(b&j)fluoranthene	mg/L	-	-		<0.000010
Benzo(g,h,i)perylene	mg/L	-	-		<0.000020
Benzo(k)fluoranthene	mg/L	-	-		<0.000010
Chrysene	mg/L	-	-		<0.000020
Dibenz(a,h)anthracene	mg/L	-	-		<0.0000050
Fluoranthene	mg/L	-	-		<0.000020
Fluorene	mg/L	-	-		<0.000060 DLM
Indeno(1,2,3-cd)pyrene	mg/L	-	-		0.000280
1-Methylnaphthalene	mg/L	-	-		0.000063
2-Methylnaphthalene	mg/L	-	-		0.000066
Naphthalene	mg/L	-	-		0.000061
Phenanthrene	mg/L	-	-		<0.000050
Pyrene	mg/L	-	-		<0.000010
Quinoline	mg/L	-	-		0.000044
Surrogate: Acridine d9	%	-	-		114.7
Surrogate: Chrysene d12	%	-	-		107.9
Surrogate: Naphthalene d8	%	-	-		128.2
Surrogate: Phenanthrene d10	%	-	-		111.7
B(a)P Total Potency Equivalent	mg/L	-	-		0.000035

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.
Analytical result for this parameter exceeds Guide Limit listed on this report.
* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B

Samples are diluted and seeded, have TCMP added to inhibit nitrogenous demands, and then are incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B

Samples are diluted and seeded and then incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

C-TOC-HTC-WP	Water	Total Organic Carbon by Combustion	APHA 5310 B-WP

Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

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

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.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-WT Water F2-F4 (O.Reg.153/04) MOE DECPH-E3421/CCME TIER 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, 2001.

FC10-QT97-WP Water Fecal coliforms, 1:10 dilution by QT97 APHA 9223B QT97

Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Substrate Coliform Test". Fecal (thermotolerant) coliform bacteria are determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 44.5 +/- 0.2 degrees C for 18 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.

HARDNESS-CALC-WP Water Hardness Calculated APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-T-CVAA-WP Water Mercury Total EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

MET-T-CCMS-WP Water Total Metals in Water by CRC ICPMS EPA 200.2/6020B (mod.)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

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.

NO2+NO3-CALC-WP Water Nitrate+Nitrite CALCULATION

NO2-IC-N-WP Water Nitrite in Water by IC EPA 300.1 (mod)

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

NO3-IC-N-WP Water Nitrate in Water by IC EPA 300.1 (mod)

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

OG-GRAV-WP Water Oil & Grease - Gravimetric EPA 1664 (modified)

Water samples are acidified and extracted with hexane; the hexane extract is collected in a pre-weighed vial. The solvent is evaporated and Total Oil & Grease is determined from the weight of the residue in the vial.

P-T-COL-WP Water Phosphorus, Total APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

PAH-CCME-PPM-WT Water CCME PAHs in mg/L EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

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.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

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

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.

TC,EC10-QT97-WP	Water	Total and E. coli, 1:10 dilution by QT97	APHA 9223B QT97

Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Susbtrate Coliform Test". Total coliforms and Eschericia coli bacteria are simultaneously determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 35.0 +/- 0.5 degrees C for 18 or 24 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.

XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Total xylenes represents the sum of o-xylene and m&p-xylene.

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

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
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

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 wwt - 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.

Quality Control Report

Workorder: L2719546 Report Date: 21-JUL-22

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0

Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5815536								
WG3746445-25 DUP		**L2719546-1**						
Alkalinity, Total (as CaCO3)		111	111		mg/L	0.0	20	05-JUL-22
WG3746445-24 LCS								
Alkalinity, Total (as CaCO3)			104.3		%		85-115	05-JUL-22
WG3746445-21 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	05-JUL-22
BOD-CBOD-WP	**Water**							
Batch R5817099								
WG3745803-7 LCS								
BOD Carbonaceous			103.6		%		85-115	02-JUL-22
WG3745803-6 MB								
BOD Carbonaceous			<2.0		mg/L		2	02-JUL-22
BOD-WP	**Water**							
Batch R5817099								
WG3745803-8 DUP		**L2719544-2**						
Biochemical Oxygen Demand		94	98		mg/L	4.1	30	02-JUL-22
WG3745803-7 LCS								
Biochemical Oxygen Demand			102.0		%		85-115	02-JUL-22
WG3745803-6 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	02-JUL-22
BTEXS+F1-HSMS-WP	**Water**							
Batch R5818678								
WG3747593-4 DUP		**L2721001-1**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	08-JUL-22
Toluene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	30	08-JUL-22
Ethyl benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	08-JUL-22
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	08-JUL-22
m+p-Xylenes		0.00046	0.00054		mg/L	15	30	08-JUL-22
F1 (C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	08-JUL-22
WG3747593-2 LCS								
Benzene			100.2		%		70-130	08-JUL-22
Toluene			104.4		%		70-130	08-JUL-22
Ethyl benzene			99.9		%		70-130	08-JUL-22
o-Xylene			103.1		%		70-130	08-JUL-22
m+p-Xylenes			106.1		%		70-130	08-JUL-22
WG3747593-3 LCS								

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0

Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	**Water**							
Batch R5818678								
WG3747593-3 LCS								
F1 (C6-C10)			72.0		%		70-130	08-JUL-22
WG3747593-1 MB								
Benzene			<0.00050		mg/L		0.0005	08-JUL-22
Toluene			<0.0010		mg/L		0.001	08-JUL-22
Ethyl benzene			<0.00050		mg/L		0.0005	08-JUL-22
o-Xylene			<0.00050		mg/L		0.0005	08-JUL-22
m+p-Xylenes			<0.00040		mg/L		0.0004	08-JUL-22
F1 (C6-C10)			<0.10		mg/L		0.1	08-JUL-22
Surrogate: 4-Bromofluorobenzene (SS)			105.1		%		70-130	08-JUL-22
WG3747593-5 MS		**L2721001-1**						
Benzene			104.1		%		70-130	08-JUL-22
Toluene			108.0		%		70-130	08-JUL-22
Ethyl benzene			105.5		%		70-130	08-JUL-22
o-Xylene			107.5		%		70-130	08-JUL-22
m+p-Xylenes			109.6		%		70-130	08-JUL-22
WG3747593-6 MS		**L2721001-1**						
F1 (C6-C10)			71.4		%		70-130	08-JUL-22
C-TOC-HTC-WP	**Water**							
Batch R5822402								
WG3749611-7 DUP		**L2719605-1**						
Total Organic Carbon		2.08	1.95		mg/L	6.2	20	14-JUL-22
WG3749611-6 LCS								
Total Organic Carbon			103.1		%		80-120	14-JUL-22
WG3749611-5 MB								
Total Organic Carbon			<0.50		mg/L		0.5	14-JUL-22
WG3749611-8 MS		**L2719605-2**						
Total Organic Carbon			104.2		%		70-130	14-JUL-22
CL-IC-N-WP	**Water**							
Batch R5814860								
WG3745829-11 DUP		**L2719538-2**						
Chloride (Cl)		2.85	2.82		mg/L	1.1	20	02-JUL-22
WG3745829-10 LCS								
Chloride (Cl)			98.0		%		90-110	02-JUL-22
WG3745829-9 MB								
Chloride (Cl)			<0.50		mg/L		0.5	02-JUL-22
WG3745829-12 MS		**L2719538-2**						

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0

Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WP	**Water**							
Batch R5814860								
WG3745829-12 MS		**L2719538-2**						
Chloride (Cl)			102.9		%		75-125	02-JUL-22
EC-WP	**Water**							
Batch R5815536								
WG3746445-25 DUP		**L2719546-1**						
Conductivity		421	424		umhos/cm	0.7	10	05-JUL-22
WG3746445-23 LCS								
Conductivity			98.2		%		90-110	05-JUL-22
WG3746445-21 MB								
Conductivity			<1.0		umhos/cm		1	05-JUL-22
F2-F4-WT	**Water**							
Batch R5822122								
WG3747972-2 LCS								
F2 (C10-C16)			103.4		%		70-130	14-JUL-22
F3 (C16-C34)			108.1		%		70-130	14-JUL-22
F4 (C34-C50)			110.4		%		70-130	14-JUL-22
WG3747972-1 MB								
F2 (C10-C16)			<100		ug/L		100	14-JUL-22
F3 (C16-C34)			<250		ug/L		250	14-JUL-22
F4 (C34-C50)			<250		ug/L		250	14-JUL-22
Surrogate: 2-Bromobenzotrifluoride			87.2		%		60-140	14-JUL-22
FC10-QT97-WP	**Water**							
Batch R5813198								
WG3745789-2 DUP		**L2719543-1**						
Fecal Coliforms		690	650		MPN/100mL	6.1	65	01-JUL-22
WG3745789-1 MB								
Fecal Coliforms			<1		MPN/100mL		1	01-JUL-22
HG-T-CVAA-WP	**Water**							
Batch R5818676								
WG3747637-3 DUP		**L2712453-7**						
Mercury (Hg)-Total		<0.0000050	<0.000005(	RPD-NA	mg/L	N/A	20	08-JUL-22
WG3747637-2 LCS								
Mercury (Hg)-Total			98.9		%		80-120	08-JUL-22
WG3747637-1 MB								
Mercury (Hg)-Total			<0.000005(		mg/L		0.000005	08-JUL-22
WG3747637-4 MS		**L2712453-8**						

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-T-CVAA-WP	**Water**							
Batch R5818676								
WG3747637-4 MS		**L2712453-8**						
Mercury (Hg)-Total			110.6		%		70-130	08-JUL-22
MET-T-CCMS-WP	**Water**							
Batch R5817477								
WG3746394-4 DUP		**WG3746394-3**						
Aluminum (Al)-Total		<0.0030	0.0035	RPD-NA	mg/L	N/A	20	06-JUL-22
Arsenic (As)-Total		0.00097	0.00097		mg/L	0.1	20	06-JUL-22
Cadmium (Cd)-Total		<0.0000050	0.0000066	RPD-NA	mg/L	N/A	20	06-JUL-22
Calcium (Ca)-Total		63.8	63.1		mg/L	1.1	20	06-JUL-22
Chromium (Cr)-Total		<0.00010	0.00012	RPD-NA	mg/L	N/A	20	06-JUL-22
Cobalt (Co)-Total		0.00019	0.00019		mg/L	0.5	20	06-JUL-22
Copper (Cu)-Total		0.00404	0.00413		mg/L	2.2	20	06-JUL-22
Iron (Fe)-Total		0.994	0.968		mg/L	2.6	20	06-JUL-22
Lead (Pb)-Total		0.000096	0.000104		mg/L	8.5	20	06-JUL-22
Magnesium (Mg)-Total		58.5	56.8		mg/L	3.0	20	06-JUL-22
Manganese (Mn)-Total		0.0149	0.0147		mg/L	1.2	20	06-JUL-22
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	06-JUL-22
Potassium (K)-Total		5.62	5.61		mg/L	0.2	20	06-JUL-22
Sodium (Na)-Total		16.2	15.9		mg/L	1.8	20	06-JUL-22
Zinc (Zn)-Total		0.0162	0.0163		mg/L	0.3	20	06-JUL-22
WG3746394-2 LCS								
Aluminum (Al)-Total			103.1		%		80-120	06-JUL-22
Arsenic (As)-Total			99.1		%		80-120	06-JUL-22
Cadmium (Cd)-Total			102.0		%		80-120	06-JUL-22
Calcium (Ca)-Total			103.8		%		80-120	06-JUL-22
Chromium (Cr)-Total			102.3		%		80-120	06-JUL-22
Cobalt (Co)-Total			100.4		%		80-120	06-JUL-22
Copper (Cu)-Total			100.9		%		80-120	06-JUL-22
Iron (Fe)-Total			99.4		%		80-120	06-JUL-22
Lead (Pb)-Total			99.2		%		80-120	06-JUL-22
Magnesium (Mg)-Total			114.7		%		80-120	06-JUL-22
Manganese (Mn)-Total			101.8		%		80-120	06-JUL-22
Nickel (Ni)-Total			100.6		%		80-120	06-JUL-22
Potassium (K)-Total			98.2		%		80-120	06-JUL-22

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5817477								
WG3746394-2 LCS								
Sodium (Na)-Total			104.4		%		80-120	06-JUL-22
Zinc (Zn)-Total			101.4		%		80-120	06-JUL-22
WG3746394-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	06-JUL-22
Arsenic (As)-Total			0.00010	B	mg/L		0.0001	06-JUL-22
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	06-JUL-22
Calcium (Ca)-Total			<0.050		mg/L		0.05	06-JUL-22
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	06-JUL-22
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	06-JUL-22
Copper (Cu)-Total			<0.00050		mg/L		0.0005	06-JUL-22
Iron (Fe)-Total			<0.010		mg/L		0.01	06-JUL-22
Lead (Pb)-Total			<0.000050		mg/L		0.00005	06-JUL-22
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	06-JUL-22
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	06-JUL-22
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	06-JUL-22
Potassium (K)-Total			<0.050		mg/L		0.05	06-JUL-22
Sodium (Na)-Total			<0.050		mg/L		0.05	06-JUL-22
Zinc (Zn)-Total			<0.0030		mg/L		0.003	06-JUL-22
WG3746394-5 MS		**WG3746394-3**						
Aluminum (Al)-Total			103.1		%		70-130	06-JUL-22
Arsenic (As)-Total			102.3		%		70-130	06-JUL-22
Cadmium (Cd)-Total			102.7		%		70-130	06-JUL-22
Calcium (Ca)-Total			N/A	MS-B	%		-	06-JUL-22
Chromium (Cr)-Total			100.7		%		70-130	06-JUL-22
Cobalt (Co)-Total			98.6		%		70-130	06-JUL-22
Copper (Cu)-Total			95.6		%		70-130	06-JUL-22
Iron (Fe)-Total			97.1		%		70-130	06-JUL-22
Lead (Pb)-Total			96.3		%		70-130	06-JUL-22
Magnesium (Mg)-Total			N/A	MS-B	%		-	06-JUL-22
Manganese (Mn)-Total			96.1		%		70-130	06-JUL-22
Nickel (Ni)-Total			97.1		%		70-130	06-JUL-22
Potassium (K)-Total			N/A	MS-B	%		-	06-JUL-22
Sodium (Na)-Total			N/A	MS-B	%		-	06-JUL-22
Zinc (Zn)-Total			97.7		%		70-130	06-JUL-22

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-COL-WP	**Water**							
Batch R5816418								
WG3746965-20 DUP		**L2719592-1**						
Ammonia, Total (as N)		0.052	0.054		mg/L	4.7	20	06-JUL-22
WG3746965-18 LCS								
Ammonia, Total (as N)			105.5		%		85-115	07-JUL-22
WG3746965-17 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	07-JUL-22
WG3746965-19 MS		**L2719592-1**						
Ammonia, Total (as N)			93.3		%		75-125	06-JUL-22
NO2-IC-N-WP	**Water**							
Batch R5814860								
WG3745829-11 DUP		**L2719538-2**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	02-JUL-22
WG3745829-10 LCS								
Nitrite (as N)			97.5		%		90-110	02-JUL-22
WG3745829-9 MB								
Nitrite (as N)			<0.010		mg/L		0.01	02-JUL-22
WG3745829-12 MS		**L2719538-2**						
Nitrite (as N)			103.4		%		75-125	02-JUL-22
NO3-IC-N-WP	**Water**							
Batch R5814860								
WG3745829-11 DUP		**L2719538-2**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	02-JUL-22
WG3745829-10 LCS								
Nitrate (as N)			98.8		%		90-110	02-JUL-22
WG3745829-9 MB								
Nitrate (as N)			<0.020		mg/L		0.02	02-JUL-22
WG3745829-12 MS		**L2719538-2**						
Nitrate (as N)			104.4		%		75-125	02-JUL-22
OG-GRAV-WP	**Water**							
Batch R5821177								
WG3747466-2 LCS								
Oil and Grease			85.6		%		70-130	07-JUL-22
WG3747466-1 MB								
Oil and Grease			<5.0		mg/L		5	07-JUL-22
P-T-COL-WP	**Water**							

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-WP	**Water**							
Batch R5824659								
WG3749638-7 DUP		**L2719475-3**						
Phosphorus (P)-Total		0.0476	0.0462		mg/L	3.0	20	19-JUL-22
WG3749638-6 LCS								
Phosphorus (P)-Total			93.4		%		80-120	19-JUL-22
WG3749638-5 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	19-JUL-22
WG3749638-8 MS		**L2719785-3**						
Phosphorus (P)-Total			93.1		%		70-130	19-JUL-22
PAH-CCME-PPM-WT	**Water**							
Batch R5822237								
WG3747972-2 LCS								
1-Methylnaphthalene			111.8		%		60-130	14-JUL-22
2-Methylnaphthalene			100.8		%		60-130	14-JUL-22
Acenaphthene			111.9		%		60-130	14-JUL-22
Acenaphthylene			106.8		%		60-130	14-JUL-22
Anthracene			98.8		%		60-130	14-JUL-22
Acridine			95.3		%		60-130	14-JUL-22
Benzo(a)anthracene			83.0		%		60-130	14-JUL-22
Benzo(a)pyrene			93.1		%		60-130	14-JUL-22
Benzo(b&j)fluoranthene			84.1		%		60-130	14-JUL-22
Benzo(g,h,i)perylene			114.9		%		60-130	14-JUL-22
Benzo(k)fluoranthene			114.5		%		60-130	14-JUL-22
Chrysene			127.2		%		60-130	14-JUL-22
Dibenz(a,h)anthracene			100.9		%		60-130	14-JUL-22
Fluoranthene			114.1		%		60-130	14-JUL-22
Fluorene			111.0		%		60-130	14-JUL-22
Indeno(1,2,3-cd)pyrene			112.4		%		60-130	14-JUL-22
Naphthalene			103.6		%		50-130	14-JUL-22
Phenanthrene			110.4		%		60-130	14-JUL-22
Pyrene			114.4		%		60-130	14-JUL-22
Quinoline			118.0		%		60-130	14-JUL-22
WG3747972-1 MB								
1-Methylnaphthalene			<0.000020		mg/L		0.00002	14-JUL-22
2-Methylnaphthalene			<0.000020		mg/L		0.00002	14-JUL-22
Acenaphthene			<0.000020		mg/L		0.00002	14-JUL-22

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-PPM-WT	**Water**							
Batch R5822237								
WG3747972-1 MB								
Acenaphthylene			<0.000020		mg/L		0.00002	14-JUL-22
Anthracene			<0.000010		mg/L		0.00001	14-JUL-22
Acridine			<0.000020		mg/L		0.00002	14-JUL-22
Benzo(a)anthracene			<0.000010		mg/L		0.00001	14-JUL-22
Benzo(a)pyrene			<0.000005(		mg/L		0.000005	14-JUL-22
Benzo(b&j)fluoranthene			<0.000010		mg/L		0.00001	14-JUL-22
Benzo(g,h,i)perylene			<0.000020		mg/L		0.00002	14-JUL-22
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	14-JUL-22
Chrysene			<0.000020		mg/L		0.00002	14-JUL-22
Dibenz(a,h)anthracene			<0.000005(		mg/L		0.000005	14-JUL-22
Fluoranthene			<0.000020		mg/L		0.00002	14-JUL-22
Fluorene			<0.000020		mg/L		0.00002	14-JUL-22
Indeno(1,2,3-cd)pyrene			<0.000010		mg/L		0.00001	14-JUL-22
Naphthalene			<0.000050		mg/L		0.00005	14-JUL-22
Phenanthrene			<0.000050		mg/L		0.00005	14-JUL-22
Pyrene			<0.000010		mg/L		0.00001	14-JUL-22
Quinoline			<0.000020		mg/L		0.00002	14-JUL-22
Surrogate: Naphthalene d8			102.6		%		50-130	14-JUL-22
Surrogate: Phenanthrene d10			103.6		%		60-130	14-JUL-22
Surrogate: Chrysene d12			94.3		%		60-130	14-JUL-22
Surrogate: Acridine d9			83.3		%		60-130	14-JUL-22
PH-WP	**Water**							
Batch R5815536								
WG3746445-25 DUP		**L2719546-1**						
pH		7.24	7.17	J	pH units	0.07	0.2	05-JUL-22
WG3746445-22 LCS								
pH			7.06		pH units		6.9-7.1	05-JUL-22
PHENOLS-4AAP-WT	**Water**							
Batch R5820316								
WG3747094-3 DUP		**L2719104-1**						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	07-JUL-22
WG3747094-2 LCS								
Phenols (4AAP)			103.4		%		85-115	07-JUL-22
WG3747094-1 MB								

Quality Control Report

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PHENOLS-4AAP-WT	**Water**							
Batch R5820316								
WG3747094-1 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	07-JUL-22
WG3747094-4 MS		**L2719104-1**						
Phenols (4AAP)			109.7		%		75-125	07-JUL-22
SO4-IC-N-WP	**Water**							
Batch R5814860								
WG3745829-11 DUP		**L2719538-2**						
Sulfate (SO4)		51.7	51.6		mg/L	0.1	20	02-JUL-22
WG3745829-10 LCS								
Sulfate (SO4)			99.8		%		90-110	02-JUL-22
WG3745829-9 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	02-JUL-22
WG3745829-12 MS		**L2719538-2**						
Sulfate (SO4)			101.3		%		75-125	02-JUL-22
SOLIDS-TOTSUS-WP	**Water**							
Batch R5815876								
WG3746232-6 DUP		**L2719787-1**						
Total Suspended Solids		111	122		mg/L	9.4	20	05-JUL-22
WG3746232-5 LCS								
Total Suspended Solids			86.4		%		85-115	05-JUL-22
WG3746232-4 MB								
Total Suspended Solids			<3.0		mg/L		3	05-JUL-22
TC,EC10-QT97-WP	**Water**							
Batch R5813201								
WG3745791-2 DUP		**L2719546-1**						
Total Coliforms		>24200	>24200		MPN/100mL	0.0	65	01-JUL-22
Escherichia Coli		>24200	>24200		MPN/100mL	0.0	65	01-JUL-22
WG3745791-1 MB								
Total Coliforms			<1		MPN/100mL		1	01-JUL-22
Escherichia Coli			<1		MPN/100mL		1	01-JUL-22

Quality Control Report

Workorder: L2719546 Report Date: 21-JUL-22

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L2719546 Report Date: 21-JUL-22

Client: Nunavut Community & Government Services - Rankin Inlet
P.O. Box 490
Rankin Inlet NU X0C 0G0
Contact: STEVE FITZPATRICK (Rankin Inlet)

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	29-JUN-22 10:30	05-JUL-22 07:54	0.25	141	hours	EHTR-FM
Bacteriological Tests							
Fecal coliforms, 1:10 dilution by QT97							
	1	29-JUN-22 10:30	01-JUL-22 15:25	30	53	hours	EHTL
Total and E. coli, 1:10 dilution by QT97							
	1	29-JUN-22 10:30	01-JUL-22 15:25	30	53	hours	EHTL
Aggregate Organics							
Biochemical Oxygen Demand (BOD)							
	1	29-JUN-22 10:30	02-JUL-22 07:00	48	68	hours	EHTL
Carbonaceous BOD							
	1	29-JUN-22 10:30	02-JUL-22 07:00	48	68	hours	EHTL

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2719546 were received on 30-JUN-22 13:23.

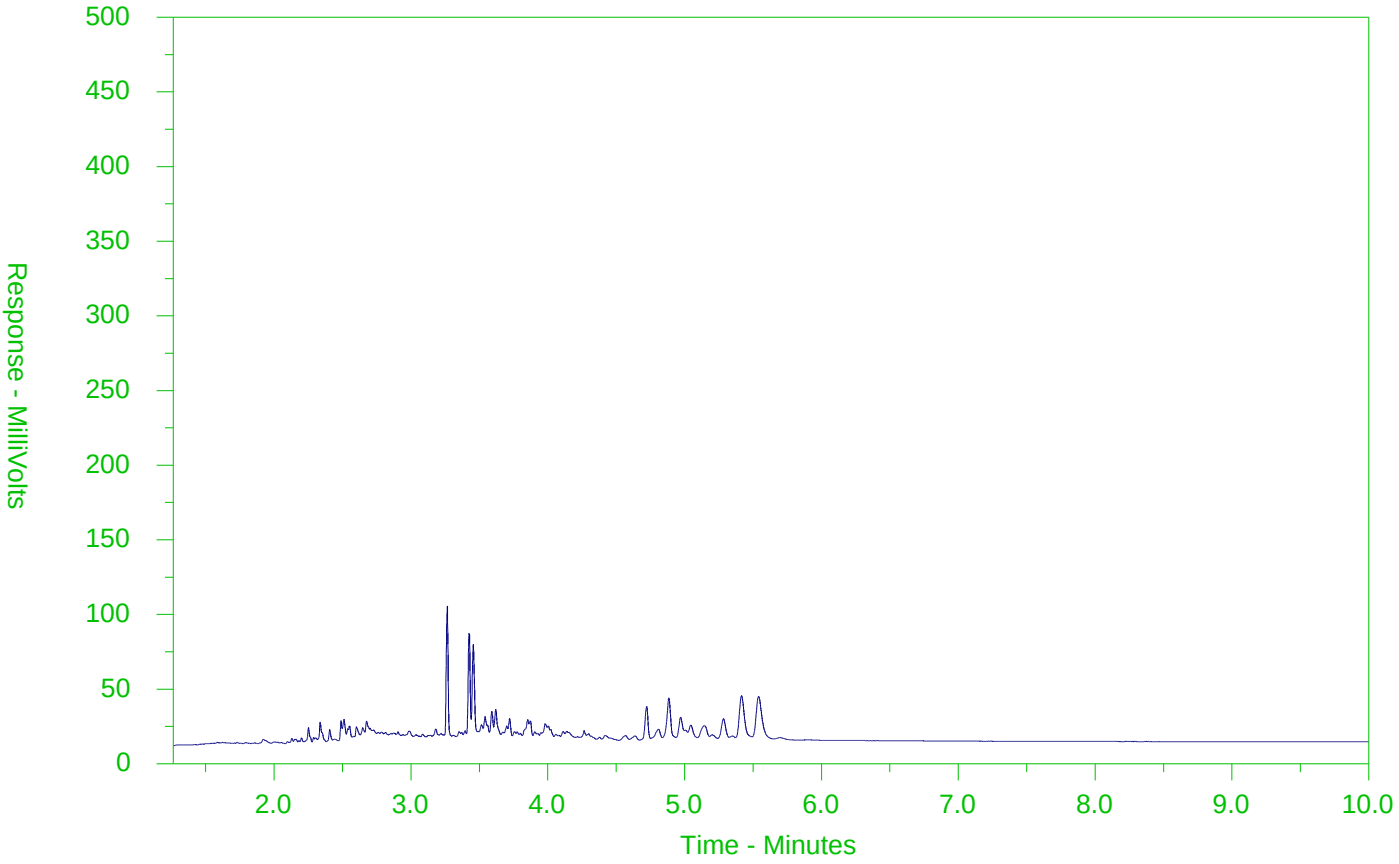
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2719546-1
Client Sample ID: RANKIN INLET WWTP - EFFLUENT



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2719546-COFC

COC Number: 15 -

Page of

Report To	Contact and company name below will appear on the final report	Report For
Company:	Nunavut - CGS - Rankin Inlet W8133	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Contact:	Steve Fitzpatrick	Quality Control (QC) Report with Report ☑ YES ☐ NO
Phone:	867-645-8172	☐ Compare Results to Criteria on Report - provide details below if box checked
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Street:	Box 490	Email 1 or Fax kivalliqwatersamples@gov.nu.ca
City/Province:	Rankin Inlet, NU	Email 2 sfitzpatrick1@gov.nu.ca
Postal Code:	X0C 0G0	Email 3 jstrickland@gov.nu.ca
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Company:	Nunavut CGS W8133	Email 1 or Fax smerkosak@gov.nu.ca
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	W8133	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		**ALS Contact:** Craig Riddell	**Sampler:**

Confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4] ☐ | 3 day [P3] ☐ | 2 day [P2] ☐

EMERGENCY: 1 Business day [E1] ☐ | Same Day, Weekend or Statutory holiday [E0] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BTEX F1-F4-WP	PAH-PANH-WP	NUNAVDE-WW-GRP1-WP	F-IC-N-WP	TC-EC-QT97-WP								Number of Containers
						P	P		P	P							
	Rankin Inlet WWTP - Effluent	29/6/22	10:30	Waste													15

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☑ YES ☐ NO	Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)
Are samples for human drinking water use? ☑ YES ☐ NO	MB-CH-PWS-WP THMs (treated water only) HAAs (treated water only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
15.3					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Bill Ross	Date: 29/6/22	Time: 10:30	Received by:	Date: JUN 30 2022	Time: 1:23 pm	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Appendix E

From:	Muckpah-Gavin, Megan
To:	Duncan, Caroline
Subject:	FW: Kivalliq Communities - Waste Water Sample bottles BR373546 Arviat , BR373553 Naujaat , BR373555 Whale Cove , BR373560 Coral Harbour, BR373566 Chesterfield Inlet, BR373567 Baker Lake , BR373570 Rankin Inlet - BR373571 Nuavut CGS Rankin Inlet
Date:	March 7, 2023 10:32:46 AM
Attachments:	image002.png image006.png image007.png image010.png image011.png image012.png

---

Again.. I never received any shipments last year

From: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Sent: October 12, 2022 12:57 PM
To: Muckpah-Gavin, Megan <MGavin@GOV.NU.CA>; ALSWP Shipping <ALSWP.Shipping@ALSGlobal.com>
Cc: Chalmers, Elan <EChalmers@gov.nu.ca>
Subject: Kivalliq Communities - Waste Water Sample bottles BR373546 Arviat , BR373553 Naujaat , BR373555 Whale Cove , BR373560 Coral Harbour, BR373566 Chesterfield Inlet, BR373567 Baker Lake , BR373570 Rankin Inlet - BR373571 Nuavut CGS Rankin Inlet

Hi Megan,

I will have shipping send out these orders to the seven hamlets and yourself for the waste water – the drinking water was sent previously .
Arviat BR373546
Naujaat BR373553
Whale Cove BR373555
Coral Harbour BR373560
Chesterfield Inlet BR373566
Baker Lake BR373567
Rankin Inlet BR373570

Nunavut CGS – Rankin Inlet W8133 BR373571

right solutions.
right partner.

Craig Riddell
Project Manager - Winnipeg
Canada

O: +1 204 255 9720
D: +1 204 255 9755
Craig.riddell@alsglobal.com
ALS Laboratories - Winnipeg
Unit 12 – 1329 Niakwa Rd East
Winnipeg, MB, R2J 3T4

alsglobal.com

Enviromail 40 *– Simplifying RBCA Hydrocarbon Testing with Sample Miniaturization & Contaminant ID Tools*
Enviromail 39 *– Biogas and Renewable Natural Gas Characterization*
EnviroMail 38 *– Subcontractor Safety Performance Reporting and Positive Performance Indicators*
EnviroMail 00 *– Summary of all EnviroMails Canada*

How was your ALS experience?

From: Muckpah-Gavin, Megan <MGavin@GOV.NU.CA>
Sent: Wednesday, October 12, 2022 8:57 AM
To: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Cc: Chalmers, Elan <EChalmers@gov.nu.ca>
Subject: RE: [EXTERNAL] - DWC/WLM Sample bottles

Good morning, Craig,

Just wondering if these bottles were ever sent up yet as we'd like to get at least one set done before the freeze-up. Please let me know if any has been sent.

Regards,

Megan Muckpah-Gavin
Municipal Technical Officer,
Community & Government Services

Phone 867-645-8120
Email mgavin@gov.nu.ca

From: Muckpah-Gavin, Megan
Sent: September 29, 2022 2:07 PM
To: 'Craig Riddell' <Craig.Riddell@ALSGlobal.com>
Cc: Chalmers, Elan <EChalmers@gov.nu.ca>
Subject: RE: [EXTERNAL] - DWC/WLM Sample bottles

Hello,

Just following up on the status of shipping these bottles up that I had ordered back in May in another email chain. If possible we can expedite the shipments for the Wastewater sampling to cooler 1 into each community and then following the rest of coolers.

Thanks,

Megan Muckpah-Gavin
Municipal Technical Officer,
Community & Government Services

Phone 867-645-8120
Email mgavin@gov.nu.ca

From: Muckpah-Gavin, Megan
Sent: August 8, 2022 1:21 PM
To: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Cc: Chalmers, Elan <EChalmers@gov.nu.ca>
Subject: FW: [EXTERNAL] - DWC/WLM Sample bottles

Good Afternoon Craig,

Hope you had a great weekend. I am just following up on the sampling bottles I had ordered back in May. Just checking in to see if any has been sent or not. This is for both Water Chemistry sampling and Water License Monitoring for all Kivalliq Communities shown below. Any information on shipping or estimated shipping would be greatly appreciated

Can you please send Water Chemistry sample bottles to the following communities via Calm air Cargo using shipping account 922551. Please also have the bottles pre- labelled, if possible, as documented below.

- **Arviat** – 4 bottle sets of Water Chemistry, including THM and HAA for the treated water sample. (Labels: Raw Cell 1; Raw Cell 2; Raw Cell 3; Treated Water)
- Additional bottles: Dissolved metals, Cyanide, Mercury vial, BT, 2X F1-F4 Petroleum Hydrocarbon, 2X Amber PAH bottles (Raw & Treated)

Shipping address: Arviat – GN CGS
ATTN: Ukkualuk Karetak
P.O Box 278
Arviat, NU
X0C 0E0
PH: 867-857-2860

- **Baker Lake** – 2 bottle sets of Water Chemistry, including THM and HAA for the treated water sample. (Labels: Raw Water; Treated Water)
- Additional bottles: Dissolved metals, Cyanide, Mercury vial, BT, 2X F1-F4 Petroleum Hydrocarbon, 2X Amber PAH bottles (Raw & Treated)

Shipping address: Baker Lake – GN CGS
ATTN: Greg MacDonald
P.O Box 309
Baker Lake, NU

X0C 0A0
PH: 867-793-2744

- **Chesterfield Inlet –** 2 bottle sets of Water Chemistry, including THM and HAA for the treated water sample. (Labels: Raw Water; Treated Water)
- Additional bottles: Dissolved metals, Cyanide, Mercury vial, BT, 2X F1-F4 Petroleum Hydrocarbon, 2X Amber PAH bottles (Raw & Treated)

Shipping address: Hamlet of Chesterfield Inlet
ATTN: Don Tanuyak
P.O. Box 10
Chesterfield Inlet, NU
X0C 0B0
PH: 867-898-9926

- **Coral Harbour** - 2 bottle sets of Water Chemistry, including THM and HAA for the treated water sample. (Labels: Raw Water; Treated Water)
- Additional bottles: Dissolved metals, Cyanide, Mercury vial, BT, 2X F1-F4 Petroleum Hydrocarbon, 2X Amber PAH bottles (Raw & Treated)

Shipping address: Hamlet of Coral Harbour
ATTN: Darryl Nakoolak
Coral Harbour, NU
P.O. Box 30
X0C 0C0
PH: 867-925-8970

- **Naujaat** – 2 bottle sets of Water Chemistry, including THM and HAA for the treated water sample. (Labels: Raw Water; Treated Water)
- Additional bottles: Dissolved metals, Cyanide, Mercury vial, BT, 2X F1-F4 Petroleum Hydrocarbon, 2X Amber PAH bottles (Raw & Treated)

Shipping address: Naujaat – GN CGS
ATTN: Cyril Kusugak
Naujaat, NU
X0C 0H0
PH: 867-462-4093

- **Rankin Inlet** – 2 bottle sets of Water Chemistry, including THM and HAA for the treated water sample. (Labels: Raw Water; Treated Water)
- Additional bottles: Dissolved metals, Cyanide, Mercury vial, BT, 2X F1-F4 Petroleum Hydrocarbon, 2X Amber PAH bottles (Raw & Treated)

Shipping address: Rankin Inlet – GN CGS
ATTN: Steve Fitzpatrick
P.O Box 490
Rankin Inlet, NU
X0C 0G0
PH: 867-645-8172

- **Whale Cove** – 2 bottle sets of Water Chemistry, including THM and HAA for the treated water sample.

(Labels: Raw Water; Treated Water)

- Additional bottles: Dissolved metals, Cyanide, Mercury vial, BT, 2X F1-F4 Petroleum Hydrocarbon, 2X Amber PAH bottles (Raw & Treated)

Shipping address: Whale Cove – GN CGS
ATTN: Paul Voisey
P.O Box 96
Whale Cove, NU
X0C 0J0
PH: 867-896-9305

Water License Monitoring

VIA Canada Post

Group 1 Bottle Set
BOD (1 x 500 mL Plastic)
Routine (1 x 500 mL Plastic)
CBOD (1 x 500 mL Plastic)
Total Metals Analysis (1 x 60 mL Plastic)
Mercury (1 x 40 mL Clear Glass)
Nutrients & Phenols (2 x 100 mL Amber Glass)
Bacteria (1 x 250 mL Plastic)
Oil and Grease (2 x 250 mL Amber Glass)

Group 2 Bottle Set
BTEX-F1 (3 x 40 mL Clear Glass)
F2-F4 (2 x 100 mL Amber Glass)
PAH (2 x 100mL Amber Glass)

- **Hamlet of Arviat -** Account W10578
  Cooler 1: 5 sets of Group 1; 3 sets of Group 2
  Cooler 2: 4 sets of Group 1; 3 sets of Group 2
  Cooler 3: 4 sets of Group 1; 3 sets of Group 2
  Cooler 4: 4 sets of Group 1; 3 sets of Group 2

  Shipping address: Hamlet of Arviat
  Attn: Laura Tassiuk
  P.O. Box 150
  Arviat, NU
  X0C 0H0
  Phone: 867-857-2841

- **Hamlet of Naujaat -** Account W10624
  Cooler 1: 4 sets of Group 1; 3 sets of Group 2
  Cooler 2: 4 sets of Group 1; 3 sets of Group 2
  Cooler 3: 4 sets of Group 1; 3 sets of Group 2

  Shipping address: Hamlet of Naujaat
  Attn: Kevin Tegumiar

P.O. Box 10
Naujaat, NU
X0C 0H0
Phone: 867-462-9952

- **Hamlet of Whale Cove -** Account W10623
  Cooler 1: 3 sets of Group 1; 1 set of Group 2
  Cooler 2: 3 sets of Group 1; 1 set of Group 2
  Cooler 3: 3 sets of Group 1; 1 set of Group 2

  Shipping address: Hamlet of Whale Cove
  Attn: Stanley Adjuk
  P.O. Box 120
  Whale Cove, NU
  X0C 0J0
  Phone: 867-896-9961

- **Hamlet of Coral Harbour -** Account W10622
  Cooler 1: 5 sets of Group 1; 2 sets of Group 2
  Cooler 2: 5 sets of Group 1; 2 sets of Group 2
  Cooler 3: 5 sets of Group 1; 2 sets of Group 2

  Shipping address: Hamlet of Coral Harbour
  Attn: Darryl Nakoolak
  P.O. Box 30
  Coral Harbour, NU
  X0C 0C0
  Phone: 867-925-8970

- **Hamlet of Chesterfield Inlet -** Account W10621
  Cooler 1: 4 sets of Group 1; 1 set of Group 2
  Cooler 2: 4 sets of Group 1; 1 set of Group 2
  Cooler 3: 4 sets of Group 1; 1 set of Group 2
  Cooler 4: 4 sets of Group 1; 1 set of Group 2

  Shipping address: Hamlet of Chesterfield Inlet
  Attn: Don Tanuyak
  P.O. Box 10
  Chesterfield Inlet, NU
  X0C 0B0
  Phone: 867-898-9939

- **Hamlet of Baker Lake -** Account W10567
  Cooler 1: 4 sets of Group 1; 1 set of Group 2
  Cooler 2: 1 set of Group 1
  Cooler 3: 1 set of Group 1

  Shipping address: Hamlet of Baker Lake
  Attn: Sheldon Dorey
  P.O. Box 149
  Baker Lake, NU
  X0C 0A0

Phone: 867-793-2874

- **Hamlet of Rankin Inlet -** Account W10629
  Cooler 1: 1 set of Group 1; 1 set of Group 2
  Cooler 2: 1 set of Group 1; 1 set of Group 2
  Cooler 3: 1 set of Group 1; 1 set of Group 2

  Shipping address: Hamlet of Rankin Inlet
  Attn: Troy Aksalnik
  P.O. Bag 310
  Rankin Inlet, NU
  X0C 0G0
  Phone: 867-645-6467

- **Rankin Inlet – GN-CGS -** Account W8133
  Cooler 1: 2 sets of Group 1; 2 sets of Group 2
  6 extra bottle sets for both Group 1 & 2

  Shipping address: Rankin Inlet – GN-CGS
  ATTN: Megan Muckpah-Gavin
  P.O. Box 490
  Rankin Inlet, NU
  X0C 0G0
  Phone: 867-645-8120

Take Care,

Megan Muckpah-Gavin
Municipal Technical Officer,
Community & Government Services
Phone 867-645-8120
Email mgavin@gov.nu.ca

From: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Sent: July 6, 2022 3:47 PM
To: Muckpah-Gavin, Megan <MGavin@GOV.NU.CA>
Subject: RE: [EXTERNAL] - DWC/WLM Sample bottles

HI Megan ,

I am sorry , they have not yet been sent .

Craig Riddell
Project Manager , Winnipeg Environmental
Canada

O: +204-255-9755

craig.riddell@alsglobal.com
Unit 12 – 1329 Niakwa Road East
Winnipeg, MB,
R2J 3T4

alsglobal.com

EnviroMail 31 Update – Climate Change and Sustainability Action and Outcomes at ALS Canada
EnviroMail 37 – In Vitro Bioaccessibility of Lead and Arsenic in Soil
EnviroMail 36 – Ion Balance: Data Quality Validation for Metals & Anions in Waters
EnviroMail 00 – Summary of all EnviroMails Canada

How was your ALS experience?

From: Muckpah-Gavin, Megan <MGavin@GOV.NU.CA>
Sent: Wednesday, July 6, 2022 1:43 PM
To: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Subject: [EXTERNAL] - DWC/WLM Sample bottles

Good afternoon Craig,

I am sure you are aware that I have ordered Water Chemistry sampling bottles and Water Licence Monitoring sampling bottles end of May/Early June. Can you please confirm if those bottles were sent to the Kivalliq communities ? Any information would be greatly appreciated

Have a great day !

Megan Muckpah-Gavin
Municipal Technical Officer,
Community & Government Services

Phone 867-645-8120
Email mgavin@gov.nu.ca

From:	Muckpah-Gavin, Megan
To:	Duncan, Caroline
Subject:	FW: Nunavut Communities - Waste Water Coolers - 7 communities - sampling bottle order - Arviat, Naujaat, Whale Cove, Coral Harbour, Chesterfield Inlet, Baker Lake, Rankin Inlet & Rankin CGS
Date:	March 7, 2023 10:30:01 AM
Attachments:	image013.png image014.png image015.png image016.png

---

From: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Sent: June 14, 2022 5:22 PM
To: Muckpah-Gavin, Megan <MGavin@GOV.NU.CA>
Cc: Lusty, Megan <MLusty@GOV.NU.CA>
Subject: RE: Nunavut Communities - Waste Water Coolers - 7 communities - sampling bottle order - Arviat, Naujaat, Whale Cove, Coral Harbour, Chesterfield Inlet, Baker Lake, Rankin Inlet & Rankin CGS

I will try to get these out on Calm Air this week.

right solutions. right partner.

Craig Riddell
Project Manager , Winnipeg Environmental
Canada

O: +204-255-9755

craig.riddell@alsglobal.com
Unit 12 – 1329 Niakwa Road East
Winnipeg, MB,
R2J 3T4

alsglobal.com

From: Muckpah-Gavin, Megan <MGavin@GOV.NU.CA>
Sent: Tuesday, June 14, 2022 4:12 PM
To: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Cc: Lusty, Megan <MLusty@GOV.NU.CA>
Subject: Nunavut Communities - Waste Water Coolers - 7 communities - sampling bottle order - Arviat, Naujaat, Whale Cove, Coral Harbour, Chesterfield Inlet, Baker Lake, Rankin Inlet & Rankin CGS

Hey Craig,

Would it be possible to expedite the shipment of Cooler 1 into each community?

Thanks,

Megan Muckpah-Gavin

Municipal Technical Officer,

Community & Government Services

Phone 867-645-8120

Email mgavin@gov.nu.ca

From: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Sent: June 14, 2022 2:47 PM
To: Muckpah-Gavin, Megan <MGavin@GOV.NU.CA>
Cc: Lusty, Megan <MLusty@GOV.NU.CA>
Subject: RE: [EXTERNAL] - RE: WLM sampling bottle order

Our shipping dept is backlogged , These have not yet been sent.

Craig Riddell
Project Manager , Winnipeg Environmental
Canada

O: +204-255-9755

craig.riddell@alsglobal.com
Unit 12 – 1329 Niakwa Road East
Winnipeg, MB,
R2J 3T4

alsglobal.com

EnviroMail 31 Update – Climate Change and Sustainability Action and Outcomes at ALS Canada
EnviroMail 37 – In Vitro Bioaccessibility of Lead and Arsenic in Soil
EnviroMail 36 – Ion Balance: Data Quality Validation for Metals & Anions in Waters
EnviroMail 00 – Summary of all EnviroMails Canada

How was your ALS experience?

From: Muckpah-Gavin, Megan <MGavin@GOV.NU.CA>
Sent: Tuesday, June 14, 2022 2:30 PM
To: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Cc: Lusty, Megan <MLusty@GOV.NU.CA>
Subject: [EXTERNAL] - RE: WLM sampling bottle order

Good afternoon Craig,

Can you please confirm if these bottles were sent ?

Thanks!

Megan Muckpah-Gavin

Municipal Technical Officer,

Community & Government Services

Phone 867-645-8120

Email mgavin@gov.nu.ca

From: Muckpah-Gavin, Megan
Sent: May 24, 2022 9:24 AM
To: Craig Riddell <Craig.Riddell@ALSGlobal.com>
Cc: Lusty, Megan <MLusty@GOV.NU.CA>
Subject: WLM sampling bottle order

Good morning Craig,

Hope you enjoyed your long weekend! Can you please send Wastewater sampling bottles to the following communities via Canada Post? Please have the bottles labelled as documented on the attached CoC Forms if possible.

Group 1 Bottle Set
BOD (1 x 500 mL Plastic)
Routine (1 x 500 mL Plastic)
CBOD (1 x 500 mL Plastic)
Total Metals Analysis (1 x 60 mL Plastic)
Mercury (1 x 40 mL Clear Glass)
Nutrients & Phenols (2 x 100 mL Amber Glass)
Bacteria (1 x 250 mL Plastic)
Oil and Grease (2 x 250 mL Amber Glass)

Group 2 Bottle Set
BTEX-F1 (3 x 40 mL Clear Glass)
F2-F4 (2 x 100 mL Amber Glass)
PAH (2 x 100mL Amber Glass)

- **Hamlet of Arviat -** Account W10578
  Cooler 1: 5 sets of Group 1; 3 sets of Group 2
  Cooler 2: 4 sets of Group 1; 3 sets of Group 2
  Cooler 3: 4 sets of Group 1; 3 sets of Group 2
  Cooler 4: 4 sets of Group 1; 3 sets of Group 2

  Shipping address: Hamlet of Arviat
  Attn: Laura Tassiuk

P.O. Box 150
Arviat, NU
X0C 0H0
Phone: 867-857-2841

- **Hamlet of Naujaat -** Account W10624
  Cooler 1: 4 sets of Group 1; 3 sets of Group 2
  Cooler 2: 4 sets of Group 1; 3 sets of Group 2
  Cooler 3: 4 sets of Group 1; 3 sets of Group 2

  Shipping address: Hamlet of Naujaat
  Attn: Kevin Tegumiar
  P.O. Box 10
  Naujaat, NU
  X0C 0H0
  Phone: 867-462-9952

- **Hamlet of Whale Cove -** Account W10623
  Cooler 1: 3 sets of Group 1; 1 set of Group 2
  Cooler 2: 3 sets of Group 1; 1 set of Group 2
  Cooler 3: 3 sets of Group 1; 1 set of Group 2

  Shipping address: Hamlet of Whale Cove
  Attn: Stanley Adjuk
  P.O. Box 120
  Whale Cove, NU
  X0C 0J0
  Phone: 867-896-9961

- **Hamlet of Coral Harbour -** Account W10622
  Cooler 1: 5 sets of Group 1; 2 sets of Group 2
  Cooler 2: 5 sets of Group 1; 2 sets of Group 2
  Cooler 3: 5 sets of Group 1; 2 sets of Group 2

  Shipping address: Hamlet of Coral Harbour
  Attn: Darryl Nakoolak
  P.O. Box 30
  Coral Harbour, NU
  X0C 0C0
  Phone: 867-925-8970

- **Hamlet of Chesterfield Inlet -** Account W10621
  Cooler 1: 4 sets of Group 1; 1 set of Group 2
  Cooler 2: 4 sets of Group 1; 1 set of Group 2
  Cooler 3: 4 sets of Group 1; 1 set of Group 2

Cooler 4: 4 sets of Group 1; 1 set of Group 2

Shipping address: Hamlet of Chesterfield Inlet
Attn: Don Tanuyak
P.O. Box 10
Chesterfield Inlet, NU
X0C 0B0
Phone: 867-898-9939

- **Hamlet of Baker Lake -** Account W10567
  Cooler 1: 4 sets of Group 1; 1 set of Group 2
  Cooler 2: 1 set of Group 1
  Cooler 3: 1 set of Group 1

  Shipping address: Hamlet of Baker Lake
  Attn: Sheldon Dorey
  P.O. Box 149
  Baker Lake, NU
  X0C 0A0
  Phone: 867-793-2874

- **Hamlet of Rankin Inlet -** Account W10629
  Cooler 1: 1 set of Group 1; 1 set of Group 2
  Cooler 2: 1 set of Group 1; 1 set of Group 2
  Cooler 3: 1 set of Group 1; 1 set of Group 2

  Shipping address: Hamlet of Rankin Inlet
  Attn: Troy Aksalnik
  P.O. Bag 310
  Rankin Inlet, NU
  X0C 0G0
  Phone: 867-645-6467

- **Rankin Inlet – GN-CGS -** Account W8133
  Cooler 1: 2 sets of Group 1; 2 sets of Group 2
  6 extra bottle sets for both Group 1 & 2

  Shipping address: Rankin Inlet – GN-CGS
  ATTN: Megan Muckpah-Gavin
  P.O. Box 490
  Rankin Inlet, NU
  X0C 0G0
  Phone: 867-645-8120

Thanks!

Megan Muckpah-Gavin

Municipal Technical Officer,

Community & Government Services

Phone 867-645-8120

Email mgavin@gov.nu.ca

APPENDIX F

WATER LICENCE INSPECTION FORM

☒ Original
☐ Follow-Up Report

Licensee	Licensee Representative
Community and Government Services	Megan Muckpah-Gavin
Licence No. / Expiry	**Representative's Title**
3AM-GRA1631	Municipal Technical Officer
Land Authorization No. / Expiry	**Land Authorization Expiry**
NA	NA
Date of Inspection	**Inspector**
July 20, 2022	WRO. Kyle Amsel

Activities Inspected

☐ Camp ☐ Drilling ☐ Mining ☐ Construction ☐ Reclamation ☐ Fuel Storage
☐ Roads/Hauling ☒ Other: Municipal ☐ Other:

SECTION 1 ☒ **Comments** (s.__) ☐ **Non-Compliance with Act or Licence** (s.__) ☐ **Action Required** (s.__)

On July 20, 2022 Water Resources Officer Kyle Amsel (Inspector) a duly appointed Inspector under the *Nunavut Waters and Surface Rights Tribunal Act* (Act) conducted an Inspection of Water Licence 3AM-GRA1631 (Licence). The Inspection was conducted to ensure compliance with the Act and the Licence.

The Inspector was accompanied by Municipal Technical Officer Meagan Muckpah-Gavin, and Facilities Manager Steve Fitzpatrick (Representatives).

This report was produced based on the observations made by the Inspector and information provided by the Representatives.

Preliminary Information

The annual report was available for review as required by the Licence Part B Item 1.

Observations

1. At Lower Landing Lake pumping station (GRA-7) (Photo 1)
    a. This pumping station is used to replenish Nipissar Lake.
    b. Representatives stated a screen is on the end of the pipe satisfying Part D Item 6 of the Licence.
    c. A flow meter is present with a total amount and an hourly rate. At 0913hrs the meter read 243,794m^3 and an hourly rate of 230m^3/hr satisfying Part B Item 4 of the Licence. Extrapolated, the pump may pump 5,520m^3/day not exceeding the limits in Part D Item 4 of the Licence. (Photo 2)
    d. Signage is not present at the site failing to comply with Part B Item 5 of the Licence.
    e. Representatives explained the water level of Lower Landing Lake is checked with the use of a rotary laser transit placed on a benchmark and a receiver on a grade rod to measure the height of Lower Landing Lake. The Lake level is taken at the beginning of the season and weekly until pumping from Lower Landing is completed. This satisfies Part J Item 7 of the Licence.
2. Nipissar Lake Water intake (GRA-5) (Photo 3)
    a. This pumping station is used to supply water to the Hamlet of Rankin Inlet.
    b. A Flow meter is present with total amount and hourly rate. At 0929hrs the meter read 6,418,950m^3 and an hourly rate of 76.58m^3/hr. (Photo 4)
    c. Representatives stated a screen is on the end of the pipe satisfying Part D Item 6 of the Licence.
    d. Representatives stated a concrete pad is in place at the discharge point where the pipeline from Lower Landing Lake discharges into Nipissar Lake satisfying Part D Item 9 of the Licence.
    e. Lake level is measured in the same way as Lower Landing Lake, with the use of a rotary laser transit and stake with a receiver. This satisfies Part J Item 7 of the Licence.
3. Water Treatment Plant
    a. Here water is received from Nipissar Lake, treated, then pumped to the residences and buildings inside the community.
4. Johnson Cove Lift Station
    a. Here sewage from the buildings in it's vicinity is pumped to the sewage treatment plant

b. Spill 2021-200 occurred in 2021 at this location. The site is remediated to the satisfaction of the Inspector.

5. Sewage Treatment Plant
   a. Here raw sewage has sludge and larger particulate removed. The sewage is then discharged into the marine environment.
   b. GRA-3 is not signed to the satisfaction of the Inspector as the writing is fading and not clearly legible. (Photo 5)
6. Overall facilities appeared maintained.
7. On July 25, 2022 Representative Steve Fitzpatrick showed the Inspector the monitoring stations which were missing signage. The signage was posted appropriately and meets the requirement of Part B Item 5 of the Licence. (Photo 6)

SECTION 2	☐ Comments (s.__)	☒ Non-Compliance with Act or Licence (s.2)	☐ Action Required (s.__)

Licence

No failures to comply under the Licence.

SECTION 3	☐ Comments (s.__)	☐ Non-Compliance with Act or Licence, (s.__)	☒ Action Required (s.3)

Licensee or Representative	Inspector's Name
Megan Muckpah-Gavin	WRO Kyle Amsel
Signature	**Signature**
Date	**Date**
	August 2, 2022

Office Use Only: Follow-up report to be issued by Inspector ☐ Yes ☒ No

PHOTO LOG			
Date:	**Authorization Number:**	**Camera/Model:**	**Inspector**
July 20, 2022	3AM-GRA1631	Sony DSC-HX50V	WRO. Kyle Amsel
Photo No.		**Lat/Long (DD.MM.SS.SS, NAD83)**	
Photo 1			

Description:

Water Intake Line from Lower Landing Lake. GRA-7

Photo No.	Lat/Long (DD.MM.SS.SS, NAD83)
Photo 2	

Description:

Water meter at GRA-7, Lower Landing Lake.

Photo No.	Lat/Long (DD.MM.SS.SS, NAD83)
Photo 3	N 62^0 49’ 24” W 92^0 06’ 50”

Description:

Nipissar Pump House.

Photo No.	Lat/Long (DD.MM.SS.SS, NAD83)
Photo 4	

Description:

Water Meter at Nipissar Lake and monitoring log.

Photo No.	Lat/Long (DD.MM.SS.SS, NAD83)
Photo 5	

Description:

GRA-3 water sampling point inside the sewage treatement plant.

Photo No.	Lat/Long (DD.MM.SS.SS, NAD83)
Photo 6	

Description:

GRA-3 signed by representative and shown to Inspector On July 25, 2022.