#### YEAR BEING REPORTED: 2018

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License No. 3BM-BAK1526 issued to the Hamlet of Baker Lake.

 i) - iii) tabular summaries of all data generated under the "Monitoring Program"; monthly and annual quantities in cubic metres of freshwater obtained from all sources; monthly and annual quantities in cubic metres of each and all wastes discharged;

Attached are quantities of water used as reported in our On Tap Water Delivery System and the estimated discharge of sewage waste based on quantities used.

Month Reported	Quantity of Water Obtained from all sources (m³)	Quantity of Sewage Waste Discharged (Estimated, m <sup>3</sup> )
January	6,403.735	Same
February	6,020.052	Same
March	6,198.240	Same
April	6,145.677	Same
Мау	6,362.395	Same
June	5,985.396	Same
July	6,433.381	Same
August	6,503.404	Same
September	6,219.471	Same
October	6,689.441	Same
November	6,364.230	Same
December	6,133.273	Same
ANNUAL TOTAL	75,458.695	75,458.695

Note: There is no meter existing at the end of the Sewage Truck discharge pipe. Therefore the monthly sewage discharge volume is considered as equal volume to the monthly water consumption.

- iv. a summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities;
  - Repair to the access road is planned for the fall of 2018. The road washed out in the spring during the melt. No update has been received to date.
  - Agnico Eagle is replacing the culverts at Airplane Lake with larger culverts. This is planned for the fall of 2018. No action has been taken to date. Possibly to be completed in the summer of 2019.
  - Batteries, old fuel drums, and other waste materials were collected and placed in sea cans which will be shipped out on empty AEM barges in the summer and fall of 2018.



July 19, 2018 – access road washout below sewage lagoon

Page 2 of 12

v. a list of unauthorized discharges and summary of follow-up action taken;

Spill No.	Date	Site Description	Commodity	Quantity
2018041	2018-02-09	Baker Lake, NU	Wastewater	500 L
2018115	2018-02-20	N/A	Wastewater	N/A
2018053	2018-02-26	Baker Lake, NU	Wastewater	0 L
2018113	2018-04-04	N/A	Wastewater	N/A
2018114	2018-04-04	N/A	Wastewater	1,363 L
2018139	2018-04-25	N/A	Wastewater	250 L
2018128	2018-04-25	N/A	Wastewater	2,000 L
2018184	2018-05-19	N/A	Petroleum – fuel oil	N/A
2018200	2018-05-27	N/A	Petroleum – fuel oil	75 L
2018204	2018-05-30	N/A	Petroleum – fuel oil	45 L
2018206	2018-05-31	N/A	Petroleum – fuel oil	N/A
2018255	2018-06-27	N/A	Petroleum – fuel oil	N/A
2018254	2018-06-28	N/A	Petroleum – fuel oil	230 L
2018265	2018-07-05	N/A	Petroleum – fuel oil	2,000 L
2018291	2018-07-20	N/A	Petroleum – fuel oil	5 L
2018383	2018-09-17	N/A	Wastewater	N/A
2018415	2018-09-28	N/A	Petroleum – fuel oil	236 L
2018474	2018-12-07	N/A	N/A	100 L
2018486	2018-12-27	N/A	Wastewater	250 L

- vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
  - No abandonment and restoration work was done in 2018.
- vii. a summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;
  - Alternate water source sampling and analysis occurred due to a fuel spill that potentially was going to reach the water intake pipe in Baker Lake.

- viii. any other details on water use or waste disposal requested by the Board by November 1st of the year being reported; and
  - none
- ix. updates or revisions to the approved Operation and Maintenance Plans.
  -none

#### ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

- The Hamlet is working with the Water Compliance Working Group to implement the Solid Waste Workplan goals.

#### FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

- The 3BM-BAK1526 INAC Inspection took place on July 19<sup>th</sup>, 2018. A copy of the inspection report can be found in Appendix H.
- **Appendix A: BAK-5 Effluent Quality Limits 1 page**
- **Appendix B: Weekly Inspections at Monitoring Program Stations, 1 page**
- Appendix C: Certificate of Analysis June 21, 2018 12 pages
- Appendix D: Certificate of Analysis July 19, 2018 6 pages
- Appendix E: Certificate of Analysis August 23, 2018 6 pages
- Appendix F: Hazardous Materials Spill Database, Baker Lake 2018 2 pages
- Appendix G: Baker Lake Sampling Results Summary 2018–4 pages
- **Appendix H: INAC Inspection Report 3 pages**

Appendix A

## Baker Lake Monitoring Stations and Sampling Parameters for Licence No. 3BM-BAK1623 Part D, Item 2; BAK-5 Effluent Quality Limits

Parameter	Maximum Concentration of any	BAK-5
Parameter	grab sample	21-Jun-18
BOD	80 mg/L	10.9
Total Suspended Solids	100 mg/L	6.3
Fecal Coliforms	1 x 10 <sup>4</sup> CFU/100mL	24200
Oil & Grease	no visible sheen	<5.0
pH	between 6 and 9	6.8

The annual sample taken at BAK-5, as per Part H, Item 1, was below maximum concentration for the effluent quality limits with the exception of Fecal Coliforms

Appendix B

## Nunavut Water Board Licence No. <u>3BM-BAK1015</u> Baker Lake, **NU**

Part H: Weekly Inspections at Monitoring Program Stations, May to August

			BAK-2			BAK-3			BAK-4			BAK-5		
	į	Water	Present	(check)	Water	Present	(check)	Water	Present	(check)	Water	Present	(check)	
Week	Starting Date	Yes	No	Frozen	Yes	No	Frozen	Yes	No	Frozen	Yes	No	Frozen	Checked By
1	30-Apr-18												ļ	
2	07-May-18													·
3	14-May-18													
4	21-May-18					·								
5	28-May-18						-							
6	04-Jun-18													
7	11-Jun-18										1			
8	18-Jun-18	$\overline{V}$						/		:	>			Paul
9	25-Jun-18													-
10	02-Jul-18													
11	09-Jul-18						-							
12	16-Jul-18													
13	23-Jul-18													
14	30-Jul-18													
15	06-Aug-18													
16	13-Aug-18						;							· · · · · · · · · · · · · · · · · · ·
17	20-Aug-18						1							
18	27-Aug-18						:					_		

#### **Monitoring Program Station Locations:**

BAK-2: Runoff from the Waste Disposal Facilities just prior to the inlet to Airplane Lake, prior to the culver

BAK-3: Outlet of Airplane Lake at water's edge

BAK-4: Runoff from the Solid Waste Disposal Facilities prior to Finger Lake

BAK-5: Finger Lake at outlet of Wetland

<sup>\*</sup> Fax Sheets Weekly to Connor Faulkner at CGS- Rankin Inlet. Fax: (867) 645-8143

Appendix C



Hamlet of Baker Lake Date Received: 22-JUN-18

ATTN: PAUL NARKYAGIK Report Date: 18-JUL-18 13:19 (MT)

Public Works Foreman - Wastewater Version: FINAL

PO Box 149

Baker Lake NU XOC 0A0 Client Phone: 867-793-2881

# Certificate of Analysis

Lab Work Order #: L2117305

Project P.O. #: NOT SUBMITTED

Job Reference: HAMLET OF BAKER LAKE - WASTEWATER

C of C Numbers: Legal Site Desc:

Hua Wo

Chemistry Laboratory Manager

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

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721 ALS CANADA LTD Part of the ALS Group An ALS Limited Company



L2117305 CONTD.... PAGE 2 of 10 Version: FINAL

1	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2117305-1 BAK-2							
Sampled By: Paul Narkyagik on 21-JUN-18 @ 12:00							
Matrix: WASTE WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		22-JUN-18	R4103167
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	30.5		1.2	mg/L		27-JUN-18	
Alkalinity, Carbonate	00.0						
Carbonate (CO3)	<0.60		0.60	mg/L		27-JUN-18	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		27-JUN-18	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	25.0		1.0	mg/L		26-JUN-18	R4097988
Ammonia by colour Ammonia, Total (as N)	<0.010		0.010	mg/L		27-JUN-18	R4099627
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		22-JUN-18	R4103167
Chloride in Water by IC Chloride (Cl)	4.06		0.50	mg/L		23-JUN-18	R4097564
Conductivity Conductivity	66.7		1.0	umhos/cm		26-JUN-18	R4097988
Fecal coliforms, 1:10 dilution by QT97	00.7		1.0	ammoo, om		20 0011 10	114007000
Fecal Coliforms	20		10	MPN/100mL		22-JUN-18	R4095712
Hardness Calculated Hardness (as CaCO3)	29.6	HTC	0.20	mg/L		28-JUN-18	
Mercury Total							
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	25-JUN-18	26-JUN-18	R4098463
Nitrate in Water by IC Nitrate (as N)	<0.020		0.020	mg/L		23-JUN-18	R4097564
Nitrate+Nitrite Nitrate and Nitrite as N	0.070		0.070	m a/l		07 1111 40	
Nitrite in Water by IC	<0.070		0.070	mg/L		27-JUN-18	
Nitrite (as N)	<0.010		0.010	mg/L		23-JUN-18	R4097564
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		03-JUL-18	R4112496
Phenol (4AAP)	0.0040		0.0040			07 11111 40	D 4404050
Phenols (4AAP) Phosphorus, Total	0.0013		0.0010	mg/L		27-JUN-18	R4101052
Phosphorus (P)-Total	0.0192		0.0010	mg/L		03-JUL-18	R4110837
Sulfate in Water by IC							
Sulfate (SO4)	0.71		0.30	mg/L		23-JUN-18	R4097564
Total Metals in Water by CRC ICPMS	0.0404		0.0000		07 1111 40	07 1111 40	D 4000055
Aluminum (Al)-Total	0.0421		0.0030	mg/L	27-JUN-18 27-JUN-18	27-JUN-18	R4098959
Arsenic (As)-Total Cadmium (Cd)-Total	0.00038		0.00010	mg/L		27-JUN-18 27-JUN-18	R4098959
Calcium (Ca)-Total	<0.0000050		0.0000050	mg/L	27-JUN-18		R4098959
Chromium (Cr)-Total	9.92		0.050	mg/L	27-JUN-18	27-JUN-18	R4098959
Cobalt (Co)-Total	0.00036		0.00010	mg/L	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
Copper (Cu)-Total	0.00019 0.00155		0.00010 0.00050	mg/L mg/L	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
Iron (Fe)-Total	0.00155		0.00050		27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
Lead (Pb)-Total	<0.00050		0.00050	mg/L mg/L	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
Magnesium (Mg)-Total	<0.000050 1.17		0.0050	mg/L	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
	1.17		0.0050	iiig/L			
	0.0404		0.00040	ma/l	27_    INI 10	27_ II INI 19	DANGOGEO
Manganese (Mn)-Total Nickel (Ni)-Total	0.0491 0.00088		0.00010 0.00050	mg/L mg/L	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L2117305 CONTD.... PAGE 3 of 10 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2117305-1 BAK-2							
Sampled By: Paul Narkyagik on 21-JUN-18 @ 12:00							
Matrix: WASTE WATER							
Total Metals in Water by CRC ICPMS Sodium (Na)-Total	1.02		0.050	mg/L	27-JUN-18	27-JUN-18	R4098959
Zinc (Zn)-Total	0.0031		0.0030	mg/L	27-JUN-18	27-JUN-18	R4098959
Total Organic Carbon by Combustion Total Organic Carbon	8.48		0.50	mg/L		13-JUL-18	R4126236
Total Suspended Solids Total Suspended Solids	<2.0		2.0	mg/L		28-JUN-18	R4104155
<b>pH</b> pH	7.05		0.10	pH units		26-JUN-18	R4097988
L2117305-2 BAK-3	7.03		0.10	pri dinto		20 0011 10	114097900
Sampled By: Paul Narkyagik on 21-JUN-18 @ 12:00							
Matrix: WASTE WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	3.5		2.0	mg/L		22-JUN-18	R4103167
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	31.0		1.2	mg/L		27-JUN-18	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		27-JUN-18	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		27-JUN-18	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	25.4		1.0	mg/L		26-JUN-18	R4097988
Ammonia by colour Ammonia, Total (as N)	1.19		0.10	mg/L		27-JUN-18	R4099627
Carbonaceous BOD BOD Carbonaceous	<2.0		2.0	mg/L		22-JUN-18	R4103167
Chloride in Water by IC Chloride (CI)	9.39		0.50	mg/L		23-JUN-18	R4097564
Conductivity Conductivity	92.9		1.0	umhos/cm		26-JUN-18	R4097988
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	190		10	MPN/100mL		22-JUN-18	R4095712
Hardness Calculated Hardness (as CaCO3)	25.8	нтс	0.20	mg/L		28-JUN-18	
Mercury Total Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	25-JUN-18	26-JUN-18	R4098463
Nitrate in Water by IC Nitrate (as N)	0.031		0.020	mg/L		23-JUN-18	R4097564
Nitrate+Nitrite Nitrate and Nitrite as N	<0.070		0.070	mg/L		27-JUN-18	
Nitrite in Water by IC Nitrite (as N)	<0.010		0.010	mg/L		23-JUN-18	R4097564
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		03-JUL-18	R4112496
Phenol (4AAP) Phenols (4AAP)	<0.0010		0.0010	mg/L		27-JUN-18	R4101052
Phosphorus, Total Phosphorus (P)-Total	0.176		0.0010	mg/L		29-JUN-18	R4108927
Sulfate in Water by IC Sulfate (SO4)	4.47		0.30	mg/L		23-JUN-18	R4097564
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	0.0908		0.0030	mg/L	27-JUN-18	27-JUN-18	R4098959
, admindin (/ ii) Total	0.0300		0.0000	mg/L	21-0014-10	Z1-00IN-10	117000000

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L2117305 CONTD.... PAGE 4 of 10 Version: FINAL

Sample Details/Parameters	Result	Qualifier* D.L.	Units	Extracted	Analyzed	Batch
L2117305-2 BAK-3						
Sampled By: Paul Narkyagik on 21-JUN-18 @ 12:00						
Matrix: WASTE WATER						
Total Metals in Water by CRC ICPMS						
Arsenic (As)-Total	0.00042	0.00010	mg/L	27-JUN-18	27-JUN-18	R4098959
Cadmium (Cd)-Total	0.0000079	0.0000050	mg/L	27-JUN-18	27-JUN-18	R4098959
Calcium (Ca)-Total	7.84	0.050	mg/L	27-JUN-18	27-JUN-18	R4098959
Chromium (Cr)-Total	0.00022	0.00010	mg/L	27-JUN-18	27-JUN-18	R4098959
Cobalt (Co)-Total	0.00019	0.00010	mg/L	27-JUN-18	27-JUN-18	R4098959
Copper (Cu)-Total	0.00300	0.00050	mg/L	27-JUN-18	27-JUN-18	R4098959
Iron (Fe)-Total	0.383	0.010	mg/L	27-JUN-18	27-JUN-18	R4098959
Lead (Pb)-Total	0.000106	0.000050	mg/L	27-JUN-18	27-JUN-18	R4098959
Magnesium (Mg)-Total Manganese (Mn)-Total	1.50 0.0693	0.0050 0.00010	mg/L	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
Nickel (Ni)-Total	0.0693	0.00010	mg/L mg/L	27-JUN-18	27-JUN-18	R4098959
Potassium (K)-Total	1.84	0.0000	mg/L	27-JUN-18	27-JUN-18	R4098959
Sodium (Na)-Total	5.77	0.050	mg/L	27-JUN-18	27-JUN-18	R4098959
Zinc (Zn)-Total	0.0039	0.0030	mg/L	27-JUN-18	27-JUN-18	R4098959
Total Organic Carbon by Combustion			<i>3</i> -			
Total Organic Carbon	7.19	0.50	mg/L		13-JUL-18	R4126236
Total Suspended Solids						
Total Suspended Solids	3.9	2.0	mg/L		28-JUN-18	R4104155
рН						
pH	6.90	0.10	pH units		26-JUN-18	R4097988
L2117305-3 BAK-4						
Sampled By: Paul Narkyagik on 21-JUN-18 @ 12:00						
Matrix: WASTE WATER						
BTEX plus F1-F4						
BTX plus F1 by GCMS			"		00 11 11 10	
Benzene	<0.00050	0.00050	mg/L		26-JUN-18	R4097295
Toluene Ethyl benzene	<0.0010 <0.00050	0.0010 0.00050	mg/L		26-JUN-18 26-JUN-18	R4097295 R4097295
o-Xylene	<0.00050	0.00050	mg/L mg/L		26-JUN-18	R4097295 R4097295
m+p-Xylenes	<0.00030	0.00030	mg/L		26-JUN-18	R4097295
F1 (C6-C10)	<0.10	0.10	mg/L		26-JUN-18	R4097295
Surrogate: 4-Bromofluorobenzene (SS)	89.0	70-130	%		26-JUN-18	R4097295
CCME PHC F2-F4 in Water						
F2 (C10-C16)	<0.10	0.10	mg/L	25-JUN-18	26-JUN-18	R4098084
F3 (C16-C34)	0.48	0.25	mg/L	25-JUN-18	26-JUN-18	R4098084
F4 (C34-C50)	<0.25	0.25	mg/L	25-JUN-18	26-JUN-18	R4098084
Surrogate: 2-Bromobenzotrifluoride	104.8	60-140	%	25-JUN-18	26-JUN-18	R4098084
CCME Total Hydrocarbons			n		04 11 11 45	
F1-BTEX	<0.10	0.10	mg/L		04-JUL-18	
F2-Naphth F3-PAH	<0.10	0.10	mg/L		04-JUL-18 04-JUL-18	
Total Hydrocarbons (C6-C50)	0.48 0.48	0.25 0.38	mg/L mg/L		04-JUL-18	
Sum of Xylene Isomer Concentrations			-			
Xylenes (Total) Miscellaneous Parameters	<0.00064	0.00064	mg/L		27-JUN-18	
	10.5		m c /l		22 11 151 40	D4400407
Biochemical Oxygen Demand	10.5	2.0	mg/L		22-JUN-18	R4103167
Polyaromatic Hydrocarbons (PAHs) 1-Methyl Naphthalene	<0.000020	0.000020	mg/L	25-JUN-18	29-JUN-18	R4098266
2-Methyl Naphthalene	<0.000020	0.000020	mg/L	25-JUN-18	29-JUN-18	R4098266
Acenaphthene	<0.000020	0.000020	mg/L	25-JUN-18	29-JUN-18	R4098266
Acenaphthylene	<0.000020	0.000020	mg/L	25-JUN-18	29-JUN-18	R4098266
	\J.000020	0.000020	g, L	20 0014-10	20 0014-10	117000200

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L2117305 CONTD.... PAGE 5 of 10 Version: FINAL

L2117305-3       BAK-4         Sampled By:       Paul Narkyagik on 21-JUN-18 @ 12:00         Matrix:       WASTE WATER         Polyaromatic Hydrocarbons (PAHs)       <0.000010       0.000010       mg/L       25-JUN-18       29-JUN-1         Acridine       <0.000020       0.000020       mg/L       25-JUN-18       29-JUN-1         Benzo(a)anthracene       <0.000020       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1         Benzo(a)pyrene       <0.000020       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1         Benzo(g,h,i)perylene       <0.000020       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1         Benzo(k)fluoranthene       <0.000010       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1         Chrysene       <0.000020       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1	8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266
Sampled By:         Paul Narkyagik on 21-JUN-18 @ 12:00           Matrix:         WASTE WATER           Polyaromatic Hydrocarbons (PAHs)            Anthracene         <0.000010         0.000010         mg/L         25-JUN-18         29-JUN-1           Acridine         <0.000020         0.000020         mg/L         25-JUN-18         29-JUN-1           Benzo(a)anthracene         <0.000020         DLM         0.000020         mg/L         25-JUN-18         29-JUN-1           Benzo(a)pyrene         <0.000020         DLM         0.000020         mg/L         25-JUN-18         29-JUN-1           Benzo(b&j)fluoranthene         <0.000020         DLM         0.000020         mg/L         25-JUN-18         29-JUN-1           Benzo(g,h,i)perylene         <0.000020         DLM         0.000020         mg/L         25-JUN-18         29-JUN-1           Benzo(k)fluoranthene         <0.000010         DLM         0.000010         mg/L         25-JUN-18         29-JUN-1           Chrysene         <0.000020         0.000020         mg/L         25-JUN-18         29-JUN-1	8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266
Matrix:         WASTE WATER           Polyaromatic Hydrocarbons (PAHs)         <0.000010	8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266
Polyaromatic Hydrocarbons (PAHs)         <0.000010	8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266
Anthracene       <0.000010       0.000010       mg/L       25-JUN-18       29-JUN-1         Acridine       <0.000020       0.000020       mg/L       25-JUN-18       29-JUN-1         Benzo(a)anthracene       <0.000020       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1         Benzo(a)pyrene       <0.000020       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1         Benzo(b&j)fluoranthene       <0.000020       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1         Benzo(k)fluoranthene       <0.000020       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1         Chrysene       <0.000020       DLM       0.000020       mg/L       25-JUN-18       29-JUN-1         Chrysene       <0.000020       0.000020       mg/L       25-JUN-18       29-JUN-1	8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266
Acridine         <0.000020	8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266
Benzo(a)anthracene         <0.000020         DLM         0.000020         mg/L         25-JUN-18         29-JUN-1           Benzo(a)pyrene         <0.000020         DLM         0.000020         mg/L         25-JUN-18         29-JUN-1           Benzo(b&j)fluoranthene         <0.000020         DLM         0.000020         mg/L         25-JUN-18         29-JUN-1           Benzo(g,h,i)perylene         <0.000020         DLM         0.000020         mg/L         25-JUN-18         29-JUN-1           Benzo(k)fluoranthene         <0.000010         DLM         0.000010         mg/L         25-JUN-18         29-JUN-1           Chrysene         <0.000020         0.000020         mg/L         25-JUN-18         29-JUN-1	8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266
Benzo(b&j)fluoranthene         <0.000020	8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266
Benzo(g,h,i)perylene         <0.000020	8 R4098266 8 R4098266 8 R4098266 8 R4098266 8 R4098266
Benzo(k)fluoranthene         <0.000010	8 R4098266 8 R4098266 8 R4098266 8 R4098266
Chrysene <0.000020 0.000020 mg/L 25-JUN-18 29-JUN-1	8 R4098266 8 R4098266 8 R4098266
	8 R4098266 8 R4098266
Dibenzo(a,h)anthracene   <0.0000050   0.0000050   mg/L   25-JUN-18   29-JUN-1	8 R4098266
Fluoranthene	
Fluorene	J 174030700
Indeno(1,2,3-cd)pyrene <a doi.org="" href="https://doi.org/li&gt; &lt;/a&gt; Indeno(1,2,3-cd)pyrene &lt;a href=" https:="" li=""> <a doi.org="" href="https://doi.org/li&gt; &lt;a href=" https:="" li=""> <a #"="" href="https:/&lt;/th&gt;&lt;th&gt;&lt;/th&gt;&lt;/tr&gt;&lt;tr&gt;&lt;th&gt;  Naphthalene   &lt;0.000050   0.000050   mg/L   25-JUN-18   29-JUN-1&lt;/th&gt;&lt;th&gt;&lt;/th&gt;&lt;/tr&gt;&lt;tr&gt;&lt;th&gt;Phenanthrene &lt;a href=">&lt;0.000050</a> <a href="#">0.000050</a> mg/L 25-JUN-18 29-JUN-1</a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a>	
Pyrene         <0.000010         0.000010         mg/L         25-JUN-18         29-JUN-1	
Quinoline <0.000020 0.000020 mg/L 25-JUN-18 29-JUN-1	
B(a)P Total Potency Equivalent         <0.000030         0.000030         mg/L         25-JUN-18         29-JUN-1           Surrogate: Acenaphthene d10         80.7         40-130         %         25-JUN-18         29-JUN-1	
Surrogate: Acridine d9 84.5 40-130 % 25-JUN-18 29-JUN-1	
Surrogate: Chrysene d12 96.9 40-130 % 25-JUN-18 29-JUN-1	
Surrogate: Naphthalene d8 84.4 40-130 % 25-JUN-18 29-JUN-1	
Surrogate: Phenanthrene d10         85.7         40-130         %         25-JUN-18         29-JUN-1	8 R4098266
Nunavut WW Group 1	
Alkalinity, Bicarbonate	_
Bicarbonate (HCO3) 52.1 1.2 mg/L 27-JUN-1	3
Alkalinity, Carbonate          0.60         mg/L         27-JUN-1	8
Alkalinity, Hydroxide	
Hydroxide (OH) <0.34 mg/L 27-JUN-1	8
Alkalinity, Total (as CaCO3)	
Alkalinity, Total (as CaCO3) 42.7 1.0 mg/L 26-JUN-1	8 R4097988
Ammonia by colour         4.68         0.10         mg/L         27-JUN-1	0 0400007
Ammonia, Total (as N)   4.68   0.10   mg/L   27-JUN-1   Carbonaceous BOD	8 R4099627
BOD Carbonaceous 7.0 2.0 mg/L 22-JUN-1	8 R4103167
Chloride in Water by IC	
Chloride (CI) 11.4 0.50 mg/L 23-JUN-1	8 R4097564
Conductivity	_
Conductivity 149 1.0 umhos/cm 26-JUN-1	8 R4097988
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms >24200 10 MPN/100mL 22-JUN-1	8 R4095712
Hardness Calculated	J 114030112
Hardness (as CaCO3)   30.1   HTC   0.20   mg/L   28-JUN-1	8
Mercury Total	
Mercury (Hg)-Total   <0.0000050   0.0000050   mg/L   25-JUN-18   26-JUN-1	8 R4098463
Nitrate in Water by IC	0 0 007504
Nitrate (as N)   0.030   0.020   mg/L   23-JUN-1     Nitrate+Nitrite	8 R4097564
Nitrate+Nitrite  Nitrate and Nitrite as N <0.070 0.070 mg/L 27-JUN-1	8
Nitrite in Water by IC	
Nitrite (as N) <0.010 mg/L 23-JUN-1	8 R4097564
Oil & Grease - Gravimetric	

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L2117305 CONTD.... PAGE 6 of 10 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2117305-3 BAK-4							
Sampled By: Paul Narkyagik on 21-JUN-18 @ 12:00							
Matrix: WASTE WATER							
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		03-JUL-18	R4112496
Phenol (4AAP)				,,		07 11 11 10	
Phenols (4AAP) Phosphorus, Total	0.0080		0.0010	mg/L		27-JUN-18	R4101052
Phosphorus (P)-Total	0.745		0.0010	mg/L		29-JUN-18	R4108927
Sulfate in Water by IC							
Sulfate (SO4)	9.14		0.30	mg/L		23-JUN-18	R4097564
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	0.289		0.0030	mg/L	27-JUN-18	27-JUN-18	R4098959
Arsenic (As)-Total	0.269		0.0030	mg/L	27-JUN-18	27-JUN-18	R4098959
Cadmium (Cd)-Total	0.0000164		0.0000050	mg/L	27-JUN-18	27-JUN-18	R4098959
Calcium (Ca)-Total	8.96		0.050	mg/L	27-JUN-18	27-JUN-18	R4098959
Chromium (Cr)-Total	0.00041		0.00010	mg/L	27-JUN-18	27-JUN-18	R4098959
Cobalt (Co)-Total Copper (Cu)-Total	0.00034 0.00977		0.00010 0.00050	mg/L	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
Iron (Fe)-Total	0.608		0.00050	mg/L mg/L	27-JUN-18	27-JUN-18	R4098959 R4098959
Lead (Pb)-Total	0.000416		0.000050	mg/L	27-JUN-18	27-JUN-18	R4098959
Magnesium (Mg)-Total	1.87		0.0050	mg/L	27-JUN-18	27-JUN-18	R4098959
Manganese (Mn)-Total	0.0975		0.00010	mg/L	27-JUN-18	27-JUN-18	R4098959
Nickel (Ni)-Total	0.00101		0.00050	mg/L	27-JUN-18	27-JUN-18	R4098959
Potassium (K)-Total Sodium (Na)-Total	3.42 8.03		0.050 0.050	mg/L mg/L	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
Zinc (Zn)-Total	0.0117		0.0030	mg/L	27-JUN-18	27-JUN-18	R4098959
Total Organic Carbon by Combustion				· ·			
Total Organic Carbon	10.8		0.50	mg/L		13-JUL-18	R4126236
Total Suspended Solids Total Suspended Solids	12.0		2.0	mg/L		28-JUN-18	R4104155
pH	12.0		2.0	IIIg/L		20-30IN-10	K4104133
pH	6.85		0.10	pH units		26-JUN-18	R4097988
L2117305-4 BAK-5							
Sampled By: Paul Narkyagik on 21-JUN-18 @ 12:00							
Matrix: WASTE WATER							
Miscellaneous Parameters				,		00 11 11 10	D
Biochemical Oxygen Demand Nunavut WW Group 1	10.9		2.0	mg/L		22-JUN-18	R4103167
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	38.1		1.2	mg/L		27-JUN-18	
Alkalinity, Carbonate	2.22		0.00	n		07 1111 40	
Carbonate (CO3)  Alkalinity, Hydroxide	<0.60		0.60	mg/L		27-JUN-18	
Hydroxide (OH)	<0.34		0.34	mg/L		27-JUN-18	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	31.2		1.0	mg/L		26-JUN-18	R4097988
Ammonia by colour Ammonia, Total (as N)	4.29		0.10	mg/L		27-JUN-18	R4099627
Carbonaceous BOD	7.23		0.10	iiig/∟		27 JOIN-10	117000021
BOD Carbonaceous	7.7		2.0	mg/L		22-JUN-18	R4103167
Chloride in Water by IC	_						
Chloride (Cl)	6.93		0.50	mg/L		23-JUN-18	R4097564
Conductivity Conductivity	95.2		1.0	umhos/cm		26-JUN-18	R4097988
Fecal coliforms, 1:10 dilution by QT97							

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L2117305 CONTD.... PAGE 7 of 10 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2117305-4 BAK-5							
L2117305-4 BAK-5 Sampled By: Paul Narkyagik on 21-JUN-18 @ 12:00							
Matrix: WASTE WATER							
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	24200		10	MPN/100mL		22-JUN-18	R4095712
Hardness Calculated	40.7	LITC	0.00			00 11111 40	
Hardness (as CaCO3)	16.7	HTC	0.20	mg/L		28-JUN-18	
Mercury Total Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	25-JUN-18	26-JUN-18	R4098463
Nitrate in Water by IC	40.000000		0.000000	9/ =	20 00.1 10	20 00.1 10	111000100
Nitrate (as N)	0.030		0.020	mg/L		23-JUN-18	R4097564
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		27-JUN-18	
Nitrite in Water by IC	-0.040		0.040	m c /l		00 II IN 40	D4007504
Nitrite (as N)	<0.010		0.010	mg/L		23-JUN-18	R4097564
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		03-JUL-18	R4112496
Phenol (4AAP)			3.5				
Phenols (4AAP)	0.0111		0.0010	mg/L		27-JUN-18	R4101052
Phosphorus, Total							
Phosphorus (P)-Total	0.582		0.0010	mg/L		29-JUN-18	R4108927
Sulfate in Water by IC Sulfate (SO4)	2.55		0.00	m c /l		23-JUN-18	D4007504
Total Metals in Water by CRC ICPMS	2.55		0.30	mg/L		23-JUIN-16	R4097564
Aluminum (Al)-Total	0.104		0.0030	mg/L	27-JUN-18	27-JUN-18	R4098959
Arsenic (As)-Total	0.00035		0.00010	mg/L	27-JUN-18	27-JUN-18	R4098959
Cadmium (Cd)-Total	0.0000174		0.0000050	mg/L	27-JUN-18	27-JUN-18	R4098959
Calcium (Ca)-Total	5.00		0.050	mg/L	27-JUN-18	27-JUN-18	R4098959
Chromium (Cr)-Total	0.00021		0.00010	mg/L	27-JUN-18	27-JUN-18	R4098959
Cobalt (Co)-Total	0.00019		0.00010	mg/L	27-JUN-18	27-JUN-18	R4098959
Copper (Cu)-Total	0.0104		0.00050	mg/L	27-JUN-18	27-JUN-18	R4098959
Iron (Fe)-Total	0.223		0.010	mg/L	27-JUN-18	27-JUN-18	R4098959
Lead (Pb)-Total	0.000224		0.000050	mg/L	27-JUN-18	27-JUN-18	R4098959
Magnesium (Mg)-Total	1.02		0.0050	mg/L	27-JUN-18	27-JUN-18	R4098959
Manganese (Mn)-Total	0.0339		0.00010	mg/L	27-JUN-18	27-JUN-18	R4098959
Nickel (Ni)-Total	0.00076		0.00050	mg/L	27-JUN-18	27-JUN-18	R4098959
Potassium (K)-Total Sodium (Na)-Total	2.23 5.21		0.050 0.050	mg/L mg/l	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
Zinc (Zn)-Total	0.0105		0.050	mg/L mg/L	27-JUN-18 27-JUN-18	27-JUN-18 27-JUN-18	R4098959 R4098959
Total Organic Carbon by Combustion	3.0103		0.0000	g, L	2. 3014-10	2. 3014-10	11-000000
Total Organic Carbon	13.3		0.50	mg/L		17-JUL-18	R4131897
Total Suspended Solids				-			
Total Suspended Solids	6.3		2.0	mg/L		28-JUN-18	R4104155
pH	0.70		0.45			00       10	D.4007055
pН	6.76		0.10	pH units		26-JUN-18	R4097988

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L2117305 CONTD....

**Reference Information** 

PAGE 8 of 10 Version: FINAL

Sample Parameter Qualifier Key:

Qualifier	Description
В	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
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.

#### **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- Water Alkalinity, Bicarbonate CALCULATION WP

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.

#### L2117305 CONTD....

PAGE 9 of 10 Version: FINAL

#### **Reference Information**

Test Method References:

ALS Test Code Matrix Test Description Method Reference\*\*

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-FID-WP Water CCME PHC F2-F4 in Water EPA 3511

Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.

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°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-CVAF-WP Water Mercury Total EPA245.7 V2.0

Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.

MET-T-CCMS-WP Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (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-L-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 Phosphorous is determined colourimetrically

after persulphate digestion of the sample.

PAH,PANH-WP Water Polyaromatic Hydrocarbons (PAHs) EPA SW 846/8270-GC/MS

Water is spiked with a surrogate spike mix and extracted using solvent extraction techniques. Analysis is performed by GC/MS in the selected ion monitoring (SIM) mode.

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.

L2117305 CONTD....

PAGE 10 of 10 Version: FINAL

#### **Reference Information**

**Test Method References:** 

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.

CALCULATED RESULT

WP

XYLENES-SUM-CALC-

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

Sum of Xylene Isomer Concentrations

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:

<b>Laboratory Definition Code</b>	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, 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

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

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.

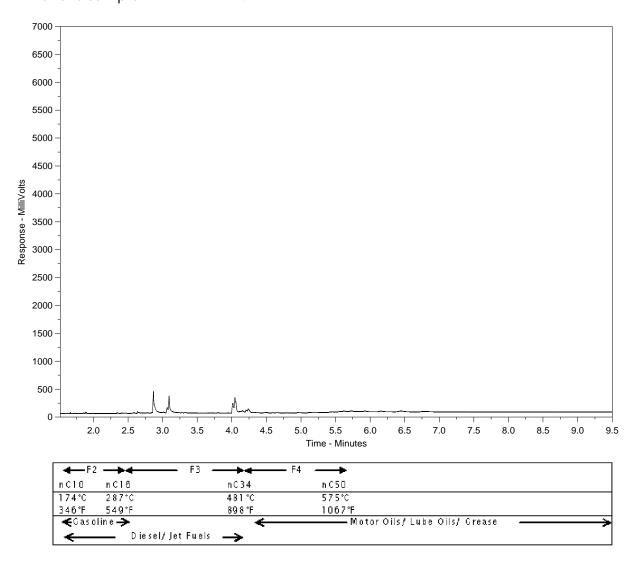
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

## CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2117305-3 Client Sample ID: BAK-4



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 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 <a href="https://www.alsglobal.com">www.alsglobal.com</a>.



# Chain of Custody (COC) / Analytical Request Form

L2117305-COFC

Page \_\_\_\_\_\_ of \_\_\_\_\_

Canada Toll Free: 1 800 668 9878

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Appendix D



Hamlet of Baker Lake ATTN: PAUL NARKYAGIK Public Works Foreman - Wastewater

PO Box 149

Baker Lake NU XOC OAO

Date Received: 20-JUL-18

Report Date: 31-JUL-18 14:44 (MT)

Version: FINAL

Client Phone: 867-793-2881

# Certificate of Analysis

Lab Work Order #: L2133356
Project P.O. #: NOT SUBMITTED

Job Reference: C of C Numbers: Legal Site Desc:

Hua Wo

Chemistry Laboratory Manager

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

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721

ALS CANADA LTD Part of the ALS Group An ALS Limited Company



Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2133356-1 BAK-2							
Sampled By: CF on 19-JUL-18 @ 10:00							
Matrix: WW							
Wattis.							
Nunavut WW Group 1							
Alkalinity, Bicarbonate	04.0		4.0			05 1111 40	
Bicarbonate (HCO3)  Alkalinity, Carbonate	24.2		1.2	mg/L		25-JUL-18	
Carbonate (CO3)	<0.60		0.60	mg/L		25-JUL-18	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		25-JUL-18	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	19.8		1.0	mg/L		24-JUL-18	R4139684
Ammonia by colour	19.0		1.0	IIIg/L		24-30L-10	K4139004
Ammonia, Total (as N)	0.020		0.010	mg/L		26-JUL-18	R4144994
Biochemical Oxygen Demand (BOD)						<b></b>	
Biochemical Oxygen Demand  Carbonaceous BOD	4.5		2.0	mg/L		21-JUL-18	R4145611
BOD Carbonaceous	<2.0		2.0	mg/L		21-JUL-18	R4145611
Chloride in Water by IC							
Chloride (CI)	9.51		0.50	mg/L		21-JUL-18	R4141610
Conductivity Conductivity	75.8		1.0	umhos/cm		24-JUL-18	R4139684
Fecal coliforms, 1:10 dilution by QT97	75.6		1.0	ummos/cm		24-JUL-10	K4139004
Fecal Coliforms	10		10	MPN/100mL		20-JUL-18	R4137517
Hardness Calculated							
Hardness (as CaCO3)	23.4	HTC	0.20	mg/L		25-JUL-18	
Mercury Total Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	26-JUL-18	26-JUL-18	R4147887
Nitrate in Water by IC	<0.000000		0.0000000	1119/12	20 002 10	20 001 10	114147007
Nitrate (as N)	<0.020		0.020	mg/L		21-JUL-18	R4141610
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		26-JUL-18	
Nitrite in Water by IC Nitrite (as N)	<0.010		0.010	mg/L		21-JUL-18	R4141610
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		30-JUL-18	R4151707
Phenol (4AAP) Phenols (4AAP)	-0.0010		0.0010	ma/l		25-JUL-18	D4440404
Phosphorus, Total	<0.0010		0.0010	mg/L		20-JUL-10	R4140191
Phosphorus (P)-Total	0.247		0.0010	mg/L		30-JUL-18	R4148148
Sulfate in Water by IC							
Sulfate (SO4)	4.42		0.30	mg/L		21-JUL-18	R4141610
Total Metals in Water by CRC ICPMS Aluminum (AI)-Total	0.0157		0.0030	mg/L	24-JUL-18	24-JUL-18	R4139757
Arsenic (As)-Total	0.00050		0.00010	mg/L	24-JUL-18	24-JUL-18	R4139757
Cadmium (Cd)-Total	0.0000051		0.0000050	mg/L	24-JUL-18	24-JUL-18	R4139757
Calcium (Ca)-Total	7.21		0.050	mg/L	24-JUL-18	24-JUL-18	R4139757
Chromium (Cr)-Total Cobalt (Co)-Total	0.00017 0.00012		0.00010 0.00010	mg/L mg/L	24-JUL-18 24-JUL-18	24-JUL-18 24-JUL-18	R4139757 R4139757
Copper (Cu)-Total	0.00012		0.00010	mg/L	24-JUL-18 24-JUL-18	24-JUL-18 24-JUL-18	R4139757
Iron (Fe)-Total	0.388		0.010	mg/L	24-JUL-18	24-JUL-18	R4139757
Lead (Pb)-Total	0.000062		0.000050	mg/L	24-JUL-18	24-JUL-18	R4139757
Magnesium (Mg)-Total	1.32		0.0050	mg/L	24-JUL-18	24-JUL-18	R4139757
Manganese (Mn)-Total	0.0214		0.00010	mg/L	24-JUL-18	24-JUL-18	R4139757
Nickel (Ni)-Total	0.00066		0.00050	mg/L	24-JUL-18	24-JUL-18	R4139757

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2133356-1 BAK-2							
Sampled By: CF on 19-JUL-18 @ 10:00							
Matrix: WW							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	1.37		0.050	mg/L	24-JUL-18	24-JUL-18	R4139757
Sodium (Na)-Total	5.56		0.050	mg/L	24-JUL-18	24-JUL-18	R4139757
Zinc (Zn)-Total  Total Organic Carbon by Combustion	0.0037		0.0030	mg/L	24-JUL-18	24-JUL-18	R4139757
Total Organic Carbon  Total Organic Carbon	8.20		0.50	mg/L		30-JUL-18	R4150367
Total Suspended Solids							
Total Suspended Solids	8.8		2.0	mg/L		26-JUL-18	R4144962
<b>pH</b> pH	7.29		0.10	pH units		24-JUL-18	R4139684
<u>ьп</u>	7.29		0.10	pri units		24-JUL-10	R4139064

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

PAGE 4 of 5 Version: FINAL

#### **Reference Information**

Sample Parameter Qualifier Key:

Qualifier	Description
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.

#### **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- Water Alkalinity, Bicarbonate CALCULATION WP

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.

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.

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°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-CVAF-WP Water Mercury Total EPA245.7 V2.0

Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.

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

L2133356 CONTD....

PAGE 5 of 5 Version: FINAL

#### **Reference Information**

#### **Test Method References:**

**ALS Test Code** Matrix Method Reference\*\* **Test Description** NH3-COL-WP APHA 4500 NH3 F Water Ammonia by colour

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-L-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 Phosphorous is determined colourimetrically

after persulphate digestion of the sample.

**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.

PHENOI S-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.

\*\* 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:

<b>Laboratory Definition Code</b>	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, 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.

# Environmental www.alsglobal.com

# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2133356-COFC

900 Number: 14 - 450481

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Appendix E



Hamlet of Baker Lake ATTN: PAUL NARKYAGIK Baker Lake Swimming Pool PO Box 149 Baker Lake NU XOC 0A0 Date Received: 24-AUG-18

Report Date: 05-SEP-18 14:26 (MT)

Version: FINAL

Client Phone: 867-793-2881

# Certificate of Analysis

Lab Work Order #: L2152807

Project P.O. #: NOT SUBMITTED

Job Reference: BAKER LAKE WASTE WATER

C of C Numbers: Legal Site Desc:

Hua Wo

Chemistry Laboratory Manager

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

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721

ALS CANADA LTD Part of the ALS Group An ALS Limited Company



L2152807 CONTD.... PAGE 2 of 5 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2152807-1 BAK-2							
Sampled By: Paul Narkyagik							
Matrix: WASTE WATER							
Mann. Wierz Witzi							
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	50.0		4.0			28-AUG-18	
Alkalinity, Carbonate	50.6		1.2	mg/L		26-AUG-16	
Carbonate (CO3)	<0.60		0.60	mg/L		28-AUG-18	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		28-AUG-18	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	41.5		1.0	mg/L		27-AUG-18	R4187727
Ammonia by colour	41.5		1.0	IIIg/L		27-AUG-18	K410/12/
Ammonia, Total (as N)	0.171		0.010	mg/L		25-AUG-18	R4188107
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		25-AUG-18	R4195359
Carbonaceous BOD BOD Carbonaceous	<2.0		2.0	mg/L		25-AUG-18	R4195359
Chloride in Water by IC	~2.0		2.0	9, -			
Chloride (CI)	28.5		0.50	mg/L		26-AUG-18	R4195178
Conductivity						07 4110 40	D
Conductivity	254		1.0	umhos/cm		27-AUG-18	R4187727
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	<10		10	MPN/100mL		24-AUG-18	R4182960
Hardness Calculated							
Hardness (as CaCO3)	66.9	HTC	0.20	mg/L		05-SEP-18	
Mercury Total	-0.0000050		0.0000050	ma/l	27-AUG-18	28-AUG-18	D44000E2
Mercury (Hg)-Total  Nitrate in Water by IC	<0.0000050		0.0000050	mg/L	21-AUG-10	20-AUG-10	R4190953
Nitrate (as N)	1.58		0.020	mg/L		26-AUG-18	R4195178
Nitrate+Nitrite							
Nitrate and Nitrite as N	1.63		0.070	mg/L		31-AUG-18	
Nitrite in Water by IC Nitrite (as N)	0.051		0.010	mg/L		26-AUG-18	R4195178
Oil & Grease - Gravimetric	0.031		0.010	mg/L		207.00 10	114133170
Oil and Grease	<5.0		5.0	mg/L		05-SEP-18	R4203032
Phenol (4AAP)				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		04 4110 40	D. / / 00000
Phenols (4AAP)  Phosphorus, Total	<0.0010		0.0010	mg/L		31-AUG-18	R4197608
Phosphorus, Fotal Phosphorus (P)-Total	0.741		0.0010	mg/L		04-SEP-18	R4200955
Sulfate in Water by IC							
Sulfate (SO4)	30.7		0.30	mg/L		26-AUG-18	R4195178
Total Metals in Water by CRC ICPMS Aluminum (AI)-Total	0.121		0.0030	mg/L	04-SEP-18	04-SEP-18	R4201068
Arsenic (As)-Total	0.121		0.0030	mg/L	04-SEP-18	04-SEP-18	R4201068
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	04-SEP-18	04-SEP-18	R4201068
Calcium (Ca)-Total	20.0		0.050	mg/L	04-SEP-18	04-SEP-18	R4201068
Chromium (Cr)-Total	0.00047		0.00010	mg/L	04-SEP-18	04-SEP-18	R4201068
Copper (Cu) Total	0.00033		0.00010	mg/L	04-SEP-18 04-SEP-18	04-SEP-18	R4201068
Copper (Cu)-Total Iron (Fe)-Total	0.00430 0.836		0.00050 0.010	mg/L mg/L	04-SEP-18 04-SEP-18	04-SEP-18 04-SEP-18	R4201068 R4201068
Lead (Pb)-Total	0.000488		0.000050	mg/L	04-SEP-18	04-SEP-18	R4201068
Magnesium (Mg)-Total	4.11		0.0050	mg/L	04-SEP-18	04-SEP-18	R4201068
Manganese (Mn)-Total	0.0573		0.00010	mg/L	04-SEP-18	04-SEP-18	R4201068
Nickel (Ni)-Total	0.00170		0.00050	mg/L	04-SEP-18	04-SEP-18	R4201068
Manganese (Mn)-Total Nickel (Ni)-Total							

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L2152807 CONTD.... PAGE 3 of 5 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2152807-1 BAK-2							
Sampled By: Paul Narkyagik							
Matrix: WASTE WATER							
Total Metals in Water by CRC ICPMS							
Potassium (K)-Total	5.26		0.050	mg/L	04-SEP-18	04-SEP-18	R4201068
Sodium (Na)-Total	18.6		0.050	mg/L	04-SEP-18	04-SEP-18	R4201068
Zinc (Zn)-Total	0.0055		0.0030	mg/L	04-SEP-18	04-SEP-18	R4201068
Total Organic Carbon by Combustion				,,			
Total Organic Carbon	9.91		0.50	mg/L		29-AUG-18	R4194046
Total Suspended Solids Total Suspended Solids	3.5		2.0	mg/L		31-AUG-18	R4199048
pH	5.5		2.0	IIIg/ L		017.00 10	114133040
pH	7.34		0.10	pH units		27-AUG-18	R4187727

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

**BAKER LAKE WASTE WATER** 

L2152807 CONTD....

PAGE 4 of 5 Version: FINAL

#### Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
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.

#### **Test Method References:**

C-TOC-HTC-WP

CI -IC-N-WP

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-**CALCULATION** Water Alkalinity, Bicarbonate WP

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.

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.

**APHA 5310 B-WP** 

EPA 300.1 (mod)

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.

Chloride in Water by IC

Total Organic Carbon by Combustion

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

EC-WP **APHA 2510B** Conductivity

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.

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°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 Total Metals in Water by CRC ICPMS Water EPA 200.2/6020A (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.

**BAKER LAKE WASTE WATER** 

L2152807 CONTD....

PAGE 5 of 5 Version: FINAL

#### **Reference Information**

**Test Method References:** 

ALS Test Code Matrix Test Description Method Reference\*\*

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-L-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 Phosphorous is determined colourimetrically

after persulphate digestion of the sample.

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.

\*\* 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

#### **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.



# Chain of Custody (COC) / Analytical / Request Form

L2152807-COFC

coc Number: 14 - 450496

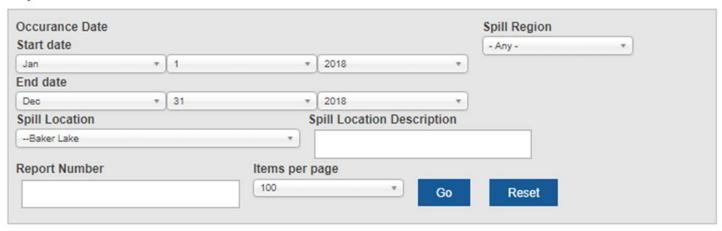
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Contact: Paul Narkyagik Address: P.O. Box 149 Hamlet of Baker laken, XOC-000	Quality Control (	QC) Report with Rep	ort ' 🗌 Yes	· • No	P				ess days If n							
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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION		THW	E - LABORATORY (	COPY YELLOV	V - CLIE	NT COF	Pγ			:	N	A-FMI-0326e v08	Front/03 Octo	aber 2013		

Appendix F

# Spills





Spill	Occurance Date -	Spill Region	Location	Location Description	Product Spilled	Quantity	Spill Cause	Lead Agency
spill- 2018486	December 27, 2018	Keewatin	Baker Lake, Community, Nunavut		Wastewater (sewage, mine tailings)	250.00		GN - Government of Nunavut
spill- 2018474	December 7, 2018	Keewatin	Baker Lake, Community, Nunavut			100.00		GN - Government of Nunavut
spill- 2018415	September 28, 2018	Keewatin	Baker Lake, Community, Nunavut		Petroleum - fuel oil (jet A, diesel, turbo A, heat)	236.00	Breakage	GN - Government of Nunavut
spill- 2018383	September 17, 2018	Keewatin	Baker Lake, Community, Nunavut		Wastewater (sewage, mine tailings)	Unknown Quantity		GN - Government of Nunavut
spill- 2018291	July 20, 2018	Keewatin	Baker Lake, Community, Nunavut		Petroleum - fuel oil (jet A, diesel, turbo A, heat)	5.00	Tank Leak	GN - Government of Nunavut

spill- 2018265	July 5, 2018	Keewatin	Baker Lake, Community, Nunavut		Petroleum - fuel oil (jet A, diesel, turbo A, heat)	2000.00	Overflow Event	GN - Government of Nunavut
spill- 2018254	June 28, 2018	Keewatin	Baker Lake, Community, Nunavut		Petroleum - fuel oil (jet A, diesel, turbo A, heat)	230.00		GN - Government of Nunavut
spill- 2018255	June 27, 2018	Keewatin	Baker Lake, Community, Nunavut		Petroleum - fuel oil (jet A, diesel, turbo A, heat)	Unknown Quantity	Breakage	GN - Government of Nunavut
spill- 2018206	May 31, 2018	Keewatin	Baker Lake, Community, Nunavut		Petroleum - fuel oil (jet A, diesel, turbo A, heat)	Unknown Quantity	Tank Leak	GN - Government of Nunavut
spill- 2018204	May 30, 2018	Keewatin	Baker Lake, Community, Nunavut		Petroleum - fuel oil (jet A, diesel, turbo A, heat)	45.00	Tank Leak	GN - Government of Nunavut
spill- 2018200	May 27, 2018	Keewatin	Baker Lake, Community, Nunavut		Petroleum - fuel oil (jet A, diesel, turbo A, heat)	75.00	Tank Leak	GN - Government of Nunavut
spill- 2018184	May 19, 2018	Keewatin	Baker Lake, Community, Nunavut		Petroleum - fuel oil (jet A, diesel, turbo A, heat)	Unknown Quantity	Breakage	GN - Government of Nunavut
spill- 2018128	April 25, 2018	Keewatin	Baker Lake, Community, Nunavut		Wastewater (sewage, mine tailings)	2000.00	Pipe Leaks	GN - Government of Nunavut
spill- 2018139	April 25, 2018	Keewatin	Baker Lake, Community, Nunavut		Wastewater (sewage, mine tailings)	250.00	Breakage	GN - Government of Nunavut
spill- 2018114	April 4, 2018	Keewatin	Baker Lake, Community, Nunavut		Wastewater (sewage, mine tailings)	1363.00	Overflow Event	GN - Government of Nunavut
spill- 2018113	April 4, 2018	Keewatin	Baker Lake, Community, Nunavut		Wastewater (sewage, mine tailings)	Unknown Quantity	Deliberate Discharge	GN - Government of Nunavut
spill- 2018053	February 26, 2018	Keewatin	Baker Lake	Baker Lake, NU	Wastewater (sewage, mine tailings)	0.00	Other	GN - Government of Nunavut
spill- 2018115	February 20, 2018	Keewatin	Baker Lake, Community, Nunavut		Wastewater (sewage, mine tailings)	Unknown Quantity		GN - Government of Nunavut
spill- 2018041	February 9, 2018	Keewatin	Baker Lake	Baker Lake, NU	Wastewater (sewage, mine tailings)	500.00	Fitting Leak	GN - Government of Nunavut

Appendix G

Baker Lake BAK-2

BAK-2				2010			Ctatistics	
Parameter	Unit	DL	21-Jun-18	2018 19-Jul-18	23-Aug-18	Min	Statistics Max	Average
Alkalinity	Offic	DL	21-3411-10	15-301-10	23-Aug-10	IVIIII	IVIUX	Average
Bicarbonate (HCO3)	mg/L	1.2	30.5	24.2	50.6	16.5	62.1	40.00
Carbonate (CO3)	mg/L	0.60	<0.60	<0.60	<0.60	0.6	12	2.88
Hydroxide (OH)	mg/L	0.34	<0.34	<0.34	<0.34	0.34	6.8	1.63
Total (as CaCO3)	mg/L	1.0	25.0	19.8	41.5	13.5	50.9	32.82
Ammonia by Colour								
Total (as N)	mg/L	0.20	<0.010	0.020	0.171	0.01	1.04	0.30
Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	mg/L	6.0	<2.0	4.5	<2.0	2	9	3.99
Carbonaceous BOD							1	
BOD Carbonaceous	mg/L	6.0	<2.0	<2.0	<2.0	2	6	2.80
Chloride in Water by IC								
Chloride (Cl)	mg/L	10	4.06	9.51	28.5	4.21	31.1	17.14
Conductivity		4.0	66.7	75.0	254	62.0	270	477.70
Conductivity	umhos/cm	1.0	66.7	75.8	254	63.8	279	177.79
Fecal Coliforms	NADNI /4.00 I	2	20	40	.10	4	2200	407.00
Fecal Coliforms  Hardness Calculated	MPN/100mL	3	20	10	<10	4	2300	407.00
Hardness Calculated Hardness (as CaCO3)	mg/L	0.30	29.6	23.4	66.9	19.6	79.7	51.28
Mercury Total	IIIg/L	0.30	25.0	23.4	00.9	13.0	13.1	J1.20
Mercury (Hg)	mg/L	0.00020	<0.0000050	<0.0000050	<0.0000050	0.000005	0.000058	0.00
Nitrate in Water by IC	IIIg/L	0.00020	10.0000000	.0.0000000	.0.0000000	0.000003	0.000038	0.00
Nitrate (as N)	mg/L	0.40	<0.020	<0.020	1.58	0.349	1.63	0.91
Nitrate + Nitrite	6/ =	5.10	3.020	5.020		5.5.5		2.51
Nitrate and Nitrite as N	mg/L	0.45	<0.070	< 0.070	1.630	0.349	1.66	0.96
Nitrite in Water by IC	G,							
Nitrite (as N)	mg/L	0.20	<0.010	< 0.010	0.051	0.01	0.198	0.05
Oil & Grease - Gravimetric								
Oil and Grease	mg/L	5.0	<5.0	<5.0	<5.0	2	19.3	5.23
Phenol								
Phenols	mg/L	0.0010	0.0013	<0.0010	<0.0010	0.001	0.026	0.00
Phosphorus, Total								
Phosphorus (P)	mg/L	0.010	0.0192	0.247	0.741	0.168	1.72	0.52
Phosphorus (P)  Sulfate in Water by IC	mg/L			0.247			1.72	
Phosphorus (P) Sulfate in Water by IC Sulfate (SO4)	mg/L mg/L	6.0	0.0192	0.247 4.42	0.741 30.7	0.168 6.71	1.72 35.3	0.52 19.89
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS	mg/L	6.0	0.71	4.42	30.7	6.71	35.3	19.89
Phosphorus (P) Sulfate in Water by IC Sulfate (SO4) Total Metals by ICP-MS Aluminium (AI)	mg/L	6.0 0.0050	0.71	4.42 0.0157	30.7	6.71 0.0342	35.3 0.237	19.89
Phosphorus (P) Sulfate in Water by IC Sulfate (SO4) Total Metals by ICP-MS Aluminium (Al) Arsenic (As)	mg/L mg/L mg/L	6.0 0.0050 0.00020	0.71 0.0421 0.00038	4.42 0.0157 0.00050	30.7 0.121 0.00103	6.71 0.0342 0.00027	35.3 0.237 0.00112	19.89 0.08 0.00
Phosphorus (P) Sulfate in Water by IC Sulfate (SO4) Total Metals by ICP-MS Aluminium (AI) Arsenic (As) Cadmium (Cd)	mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010	0.71 0.0421 0.00038 <0.0000050	4.42 0.0157 0.00050 0.0000051	30.7 0.121 0.00103 <0.0000050	6.71 0.0342 0.00027 0.0000092	35.3 0.237 0.00112 0.000019	19.89 0.08 0.00 0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (AI)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)	mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10	0.71 0.0421 0.00038 <0.0000050 9.92	4.42 0.0157 0.00050 0.0000051 7.21	30.7 0.121 0.00103 <0.0000050 20.00	6.71 0.0342 0.00027 0.0000092 6.15	35.3 0.237 0.00112 0.000019 24.8	0.08 0.00 0.00 15.64
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (AI)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)	mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010	0.71 0.0421 0.00038 <0.0000050 9.92 0.00036	4.42 0.0157 0.00050 0.000051 7.21 0.00017	30.7 0.121 0.00103 <0.0000050 20.00 0.00047	6.71 0.0342 0.00027 0.000092 6.15 0.0002	35.3 0.237 0.00112 0.000019 24.8 0.0017	19.89 0.08 0.00 0.00 15.64 0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (AI)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020	0.71 0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019	4.42 0.0157 0.00050 0.0000051 7.21 0.00017 0.00012	30.7 0.121 0.00103 <0.0000050 20.00 0.00047 0.00033	6.71 0.0342 0.00027 0.000092 6.15 0.0002 0.0002	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037	19.89 0.08 0.00 0.00 15.64 0.00 0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (AI)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020	0.71 0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012	30.7 0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043	6.71 0.0342 0.00027 0.000092 6.15 0.0002 0.0002 0.00255	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049	19.89 0.08 0.00 0.00 15.64 0.00 0.00 0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (AI)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020 0.010	0.71  0.0421  0.00038 <0.0000050  9.92  0.00036  0.00019  0.00155  0.128	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836	6.71 0.0342 0.00027 0.000092 6.15 0.0002 0.0002 0.0002 0.0255 0.224	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.00  0.57
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (AI)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020 0.010 0.000090	0.71  0.0421  0.00038  <0.0000050  9.92  0.00036  0.00019  0.00155  0.128  <0.00050	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488	6.71 0.0342 0.00027 0.000092 6.15 0.0002 0.0002 0.0002 0.00255 0.224 0.000072	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.00  0.57  0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020 0.010 0.000090 0.010	0.71  0.0421  0.00038  <0.0000050  9.92  0.00036  0.00019  0.00155  0.128  <0.00050  1.17	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32	30.7 0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11	6.71 0.0342 0.00027 0.000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.00  0.57  0.00  2.96
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020 0.010 0.000090 0.010 0.00030	0.71  0.0421  0.00038  <0.0000050  9.92  0.00036  0.00019  0.00155  0.128  <0.00050  1.17  0.0491	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214	30.7 0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573	6.71 0.0342 0.00027 0.0000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02 0.021	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.00  0.57  0.00  2.96  0.07
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020 0.010 0.000090 0.010	0.71  0.0421  0.00038  <0.0000050  9.92  0.00036  0.00019  0.00155  0.128  <0.00050  1.17	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32	30.7 0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11	6.71 0.0342 0.00027 0.000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.00  0.57  0.00  2.96
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020 0.010 0.000090 0.010 0.00030 0.00020	0.71  0.0421  0.00038  <0.0000050  9.92  0.00036  0.00019  0.00155  0.128  <0.00050  1.17  0.0491  0.00088	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017	6.71 0.0342 0.00027 0.000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02 0.021 0.00104	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.57  0.00  2.96  0.07  0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (K)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.010 0.000090 0.010 0.00030 0.0020 0.0020	0.71  0.0421  0.00038  <0.0000050  9.92  0.00036  0.00019  0.00155  0.128  <0.00050  1.17  0.0491  0.00088  0.765	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260	6.71 0.0342 0.00027 0.0000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02 0.021 0.00104 1.18	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.57  0.00  2.96  0.07  0.00  3.12
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (K)  Sodium (Na)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020 0.010 0.000090 0.010 0.00030 0.0020 0.0020 0.030	0.71  0.0421  0.00038  <0.0000050  9.92  0.00036  0.00019  0.00155  0.128  <0.00050  1.17  0.0491  0.00088  0.765  1.02	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6	6.71 0.0342 0.00027 0.0000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02 0.021 0.00104 1.18 2.95	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.57  0.00  2.96  0.07  0.00  3.12  12.17
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (Na)  Zinc (Zn)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020 0.010 0.000090 0.010 0.00030 0.0020 0.0020 0.030	0.71  0.0421  0.00038  <0.0000050  9.92  0.00036  0.00019  0.00155  0.128  <0.00050  1.17  0.0491  0.00088  0.765  1.02	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6	6.71 0.0342 0.00027 0.0000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02 0.021 0.00104 1.18 2.95	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.57  0.00  2.96  0.07  0.00  3.12  12.17
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (Na)  Zinc (Zn)  Total Organic Carbon by Combustion	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.010 0.00090 0.010 0.00030 0.0020 0.020 0.030	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.0388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055	6.71 0.0342 0.00027 0.000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02 0.021 0.00104 1.18 2.95 0.0029	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.57  0.00  2.96  0.07  0.00  3.12  12.17  0.01
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (Na)  Zinc (Zn)  Total Organic Carbon by Combustion	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.010 0.00090 0.010 0.00030 0.0020 0.020 0.030	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.0388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055	6.71 0.0342 0.00027 0.000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02 0.021 0.00104 1.18 2.95 0.0029	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.57  0.00  2.96  0.07  0.00  3.12  12.17  0.01
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (Na)  Zinc (Zn)  Total Organic Carbon  Total Suspended Solids	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.010 0.00090 0.010 0.00030 0.0020 0.030 0.0020	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.0388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055	6.71  0.0342 0.00027 0.0000092 6.15 0.0002 0.00255 0.224 0.000072 1.02 0.021 0.00104 1.18 2.95 0.0029	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.57  0.00  2.96  0.07  0.00  3.12  12.17  0.01  8.98
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (Na)  Zinc (Zn)  Total Organic Carbon  Total Suspended Solids  Total Suspended Solids	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0 0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.010 0.00090 0.010 0.00030 0.0020 0.030 0.0020	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.0388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055	6.71  0.0342 0.00027 0.0000092 6.15 0.0002 0.00255 0.224 0.000072 1.02 0.021 0.00104 1.18 2.95 0.0029	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.57  0.00  2.96  0.07  0.00  3.12  12.17  0.01  8.98
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (Na)  Zinc (Zn)  Total Organic Carbon  Total Suspended Solids  Total Suspended Solids  pH	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0  0.0050 0.00020 0.000010 0.10 0.0010 0.00020 0.00020 0.00030 0.0020 0.030 0.0020 0.50	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031  8.48  <2.0	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055 9.91 3.5	6.71  0.0342 0.00027 0.0000092 6.15 0.0002 0.0002 0.00255 0.224 0.000072 1.02 0.0021 0.00104 1.18 2.95 0.0029 4.81	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117 18.1	19.89  0.08  0.00  0.00  15.64  0.00  0.00  0.57  0.00  2.96  0.07  0.00  3.12  12.17  0.01  8.98
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (Na)  Zinc (Zn)  Total Organic Carbon  Total Suspended Solids  pH  pH  Benzene  Toluene	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0  0.0050 0.00020 0.000010 0.10 0.00020 0.00020 0.010 0.00030 0.0020 0.030 0.0020 13  0.10 0.00050 0.0010	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031 8.48 <2.0  7.05 N/A N/A	0.0157 0.00050 0.0000051 7.21 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037 8.20 8.8	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055  9.91 3.5  7.34 N/A N/A	6.71  0.0342 0.00027 0.000092 6.15 0.0002 0.00255 0.224 0.00072 1.02 0.021 0.00104 1.18 2.95 0.0029 4.81 5 6.98 0	35.3 0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117 18.1	19.89  0.08 0.00 0.00 15.64 0.00 0.00 0.57 0.00 2.96 0.07 0.00 3.12 12.17 0.01 8.98 9.00 7.32 0.00 0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (K)  Sodium (Na)  Zinc (Zn)  Total Organic Carbon by Combustion  Total Suspended Solids  pH  pH  Benzene  Toluene  Ethyl Benzene	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0  0.0050 0.00020 0.000010 0.10 0.00020 0.00020 0.010 0.00030 0.0020 0.030 0.0020 13  0.10 0.00050 0.0010 0.00050	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031 8.48 <2.0  7.05 N/A N/A	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037 8.20 8.8	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055  9.91 3.5 7.34 N/A N/A	6.71  0.0342 0.00027 0.000092 6.15 0.0002 0.00255 0.224 0.00072 1.02 0.021 0.00104 1.18 2.95 0.0029 4.81 5 6.98 0 0	35.3  0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117  18.1  13  7.66 0 0	19.89  0.08 0.00 0.00 15.64 0.00 0.00 0.57 0.00 2.96 0.07 0.00 3.12 12.17 0.01 8.98 9.00 7.32 0.00 0.00 0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (K)  Sodium (Na)  Zinc (Zn)  Total Organic Carbon  Total Organic Carbon  Total Suspended Solids  PH  pH  Benzene  Toluene  Ethyl Benzene  O-Xylene	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0  0.0050 0.00020 0.000010 0.10 0.00020 0.00020 0.010 0.00030 0.0020 0.030 0.0020 13  0.10 0.00050 0.0010 0.00050 0.00050	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031 8.48 <2.0  7.05 N/A N/A N/A	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037 8.20 8.8	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055 9.91 3.5 7.34 N/A N/A N/A	6.71  0.0342 0.00027 0.000092 6.15 0.0002 0.00255 0.224 0.000072 1.02 0.00104 1.18 2.95 0.0029 4.81 5 6.98 0 0 0	35.3  0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117  18.1  13  7.66 0 0 0	19.89  0.08 0.00 0.00 15.64 0.00 0.00 0.57 0.00 2.96 0.07 0.00 3.12 12.17 0.01 8.98 9.00 7.32 0.00 0.00 0.00 0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (K)  Sodium (Na)  Zinc (Zn)  Total Organic Carbon by Combustion  Total Suspended Solids  Total Suspended Solids  PH  pH  Benzene  Toluene  Ethyl Benzene  o-Xylene  F1 (C6-C10)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0  0.0050 0.00020 0.000010 0.10 0.00020 0.00020 0.010 0.00030 0.0020 0.030 0.0020 0.50  13  0.10 0.00050 0.0010 0.00050 0.00050 0.10	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031 8.48 <2.0  7.05 N/A N/A N/A N/A	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037 8.20 8.8	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055 9.91 3.5 7.34 N/A N/A N/A N/A	6.71  0.0342 0.00027 0.000092 6.15 0.0002 0.00255 0.224 0.000072 1.02 0.00104 1.18 2.95 0.0029 4.81 5 6.98 0 0 0 0	35.3  0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117  18.1  13  7.66 0 0 0 0	19.89  0.08 0.00 0.00 15.64 0.00 0.00 0.57 0.00 2.96 0.07 0.00 3.12 12.17 0.01 8.98 9.00 7.32 0.00 0.00 0.00 0.00 0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (K)  Sodium (Na)  Zinc (Zn)  Total Organic Carbon by Combustion  Total Suspended Solids  Total Suspended Solids  PH  pH  Benzene  Toluene  Ethyl Benzene  o-Xylene  F1 (C6-C10)  F2 (C10-C16)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0  0.0050 0.00020 0.000010 0.10 0.00020 0.00020 0.010 0.00030 0.0020 0.030 0.0020 0.50  13  0.10 0.00050 0.0010 0.00050 0.00050 0.10 0.25	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031 8.48 <2.0  7.05 N/A N/A N/A N/A N/A	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037 8.20 8.8 7.29 N/A N/A N/A	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055 9.91 3.5 7.34 N/A N/A N/A N/A N/A	6.71  0.0342 0.00027 0.000092 6.15 0.0002 0.00255 0.224 0.000072 1.02 0.00104 1.18 2.95 0.0029 4.81 5 6.98 0 0 0 0 0	35.3  0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.00495 4.31 0.141 0.002 6.05 22.1 0.0117 18.1  13  7.66 0 0 0 0 0	19.89  0.08 0.00 0.00 15.64 0.00 0.00 0.57 0.00 2.96 0.07 0.00 3.12 12.17 0.01 8.98 9.00 7.32 0.00 0.00 0.00 0.00 0.00 0.00
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (K)  Sodium (Na)  Zinc (Zn)  Total Organic Carbon by Combustion  Total Organic Carbon  Total Suspended Solids  PH  pH  Benzene  Toluene  Ethyl Benzene  o-Xylene  F1 (C6-C10)  F2 (C10-C16)  F3 (C16-C34)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0  0.0050 0.00020 0.000010 0.10 0.00020 0.00020 0.010 0.00030 0.0020 0.0020 0.030 0.0020 0.50  13  0.10 0.00050 0.0010 0.00050 0.00050 0.10 0.25 0.25	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031 8.48 <2.0  7.05 N/A N/A N/A N/A N/A N/A	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037 8.20 8.8 7.29 N/A N/A N/A N/A	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055 9.91 3.5 7.34 N/A N/A N/A N/A N/A N/A	6.71  0.0342 0.00027 0.000092 6.15 0.0002 0.000255 0.224 0.000072 1.02 0.00104 1.18 2.95 0.0029 4.81 5 6.98 0 0 0 0 0	35.3  0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.000495 4.31 0.141 0.002 6.05 22.1 0.0117 18.1  13  7.66 0 0 0 0 0 0	19.89  0.08 0.00 0.00 15.64 0.00 0.00 0.57 0.00 2.96 0.07 0.00 3.12 12.17 0.01 8.98 9.00 7.32 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0
Phosphorus (P)  Sulfate in Water by IC  Sulfate (SO4)  Total Metals by ICP-MS  Aluminium (Al)  Arsenic (As)  Cadmium (Cd)  Calcium (Ca)  Chromium (Cr)  Cobalt (Co)  Copper (Cu)  Iron (Fe)  Lead (Pb)  Magnesium (Mg)  Manganese (Mn)  Nickel (Ni)  Potassium (K)  Sodium (Na)  Zinc (Zn)  Total Organic Carbon by Combustion  Total Suspended Solids  Total Suspended Solids  pH  pH  Benzene  Toluene  Ethyl Benzene  o-Xylene  F1 (C6-C10)  F2 (C10-C16)	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	6.0  0.0050 0.00020 0.000010 0.10 0.00020 0.00020 0.010 0.00030 0.0020 0.030 0.0020 0.50  13  0.10 0.00050 0.0010 0.00050 0.00050 0.10 0.25	0.71  0.0421 0.00038 <0.0000050 9.92 0.00036 0.00019 0.00155 0.128 <0.00050 1.17 0.0491 0.00088 0.765 1.02 0.0031 8.48 <2.0  7.05 N/A N/A N/A N/A N/A	0.0157 0.00050 0.0000051 7.21 0.00017 0.00012 0.00202 0.388 0.000062 1.32 0.0214 0.00066 1.370 5.56 0.0037 8.20 8.8 7.29 N/A N/A N/A	30.7  0.121 0.00103 <0.0000050 20.00 0.00047 0.00033 0.0043 0.836 0.000488 4.11 0.0573 0.0017 5.260 18.6 0.0055 9.91 3.5 7.34 N/A N/A N/A N/A N/A	6.71  0.0342 0.00027 0.000092 6.15 0.0002 0.00255 0.224 0.000072 1.02 0.00104 1.18 2.95 0.0029 4.81 5 6.98 0 0 0 0 0	35.3  0.237 0.00112 0.000019 24.8 0.0017 0.0037 0.0049 1.18 0.00495 4.31 0.141 0.002 6.05 22.1 0.0117 18.1  13  7.66 0 0 0 0 0	19.89  0.08 0.00 0.00 15.64 0.00 0.00 0.57 0.00 2.96 0.07 0.00 3.12 12.17 0.01 8.98 9.00 7.32 0.00 0.00 0.00 0.00 0.00 0.00

#### Baker Lake BAK-3

DAR-3			2018 Statistics				
Parameter	Unit	DL	21-Jun-18	Min	Max	Average	
Alkalinity							
Bicarbonate (HCO3)	mg/L	1.2	31.0	18.2	39	26.15	
Carbonate (CO3)	mg/L	0.60	<0.60	0.60	12	3.45	
Hydroxide (OH)	mg/L	0.34	<0.34	0.34	6.8	1.96	
Total (as CaCO3)	mg/L	1.0	25.4	14.9	35	22.20	
Ammonia by Colour	1.						
Total (as N)	mg/L	0.20	1.19	0.01	0.247	0.12	
Biochemical Oxygen Demand (BOD)	1.						
Biochemical Oxygen Demand	mg/L	6.0	3.5	2	7.1	4.35	
Carbonaceous BOD	//	6.0	2.0			2.40	
BOD Carbonaceous	mg/L	6.0	<2.0	2	6	3.48	
Chloride in Water by IC	/I	10	0.20	7.02	11.4	0.40	
Chloride (CI)	mg/L	10	9.39	7.82	11.4	9.49	
Conductivity		1.0	02.0	72.2	00	02.15	
Conductivity	umhos/cm	1.0	92.9	72.2	88	82.15	
Fecal Coliforms	MDNI/100ml	2	100	2	150	41 50	
Fecal Coliforms	MPN/100mL	3	190	3	150	41.50	
Hardness Calculated	mg/l	0.20	25.0	21.2	24.6	22.10	
Hardness (as CaCO3)  Mercury Total	mg/L	0.30	25.8	21.3	24.6	23.18	
Mercury (Hg)	mg/L	0.00020	<0.000050	0.000005	0.00002	0.00	
Nitrate in Water by IC	IIIg/L	0.00020	\0.000005U	0.000000	0.00002	0.00	
Nitrate in Water by ic	mg/I	0.40	0.031	0.02	0.179	0.07	
Nitrate + Nitrite	mg/L	0.40	0.031	0.02	0.1/3	0.07	
Nitrate and Nitrite as N	mg/L	0.45	<0.070	0.07	0.179	0.10	
Nitrite in Water by IC	IIIg/L	0.43	<0.070	0.07	0.179	0.10	
Nitrite (as N)	mg/L	0.20	<0.010	0.01	0.05	0.02	
Oil & Grease - Gravimetric	IIIB/L	0.20	10.010	0.01	0.05	0.02	
Oil and Grease	mg/L	5.0	<5.0	2	5	3.50	
Phenol	IIIB/L	3.0	<b>V</b> 5.0		, ,	3.30	
Phenols	mg/L	0.0010	<0.0010	0.001	0.0033	0.00	
Phosphorus, Total	1116/ L	0.0010	10.0010	0.001	0.0055	0.00	
Phosphorus (P)	mg/L	0.010	0.2	0.079	0.145	0.11	
Sulfate in Water by IC	8/ =	0.020	0.12				
Sulfate (SO4)	mg/L	6.0	4.47	3.24	6.09	4.36	
Total Metals by ICP-MS	e,						
Aluminium (Al)	mg/L	0.0050	0.0908	0.0198	0.0706	0.05	
Arsenic (As)	mg/L	0.00020	0.00042	0.00029	0.00063	0.00	
Cadmium (Cd)	mg/L	0.000010	0.0000079	0.00001	0.00001	0.00	
Calcium (Ca)	mg/L	0.10	7.74	6.55	7.35	6.97	
Chromium (Cr)	mg/L	0.0010	0.00022	0.001	0.001	0.00	
Cobalt (Co)	mg/L	0.00020	0.00019	0.0002	0.00026	0.00	
Copper (Cu)	mg/L	0.00020	0.00300	0.00142	0.00238	0.00	
Iron (Fe)	mg/L	0.010	0.383	0.335	0.47	0.42	
Lead (Pb)	mg/L	0.000090	0.000106	0.00009	0.00009	0.00	
Magnesium (Mg)	mg/L	0.010	1.50	1.21	1.53	1.41	
Manganese (Mn)	mg/L	0.00030	0.0693	0.0295	0.0811	0.05	
Nickel (Ni)	mg/L	0.0020	0.00079	0.002	0.002	0.00	
Potassium (K)	mg/L	0.020	1.84	1	1.54	1.33	
Sodium (Na)	mg/L	0.030	5.77	4.07	6.89	5.66	
Zinc (Zn)	mg/L	0.0020	0.0039	0.0024	0.0038	0.00	
Total Organic Carbon by Combustion							
Total Organic Carbon	mg/L	0.50	7.19	5.51	13.9	8.08	
Total Suspended Solids							
Total Suspended Solids	mg/L	13	3.9	7	15	9.75	
рН							
рН	pH Units	0.10	6.9	7.16	8.46	7.54	
Benzene	mg/L	0.00050	N/A	0	0	#DIV/0!	
Toluene	mg/L	0.0010	N/A	0	0	#DIV/0!	
Ethyl Benzene	mg/L	0.00050	N/A	0	0	#DIV/0!	
o-Xylene	mg/L	0.00050	N/A	0	0	#DIV/0!	
F1 (C6-C10)	mg/L	0.10	N/A	0	0	#DIV/0!	
F2 (C10-C16)	mg/L	0.25	N/A	0	0	#DIV/0!	
F2 (C1C C24)	/I	0.25	N/A	0	0	#DIV/0!	
F3 (C16-C34)	mg/L	0.25	11/7		_	,	
F4 (C34-C50)  Total Hydrocarbons (C6-C50)	mg/L mg/L	0.25	N/A	0	0	#DIV/0!	

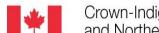
#### Baker Lake BAK-4

27			2018		Statistics	
Parameter	Unit	DL	21-Jun-18	Min	Max	Average
Alkalinity						
Bicarbonate (HCO3)	mg/L	1.2	52.1	30.4	79	48.13
Carbonate (CO3)	mg/L	0.60	<0.60	0.6	12	3.45
Hydroxide (OH)	mg/L	0.34	<0.34	0.34	6.8	1.96
Total (as CaCO3)	mg/L	1.0	42.7	24.9	64	39.25
Ammonia by Colour  Total (as N)	mg/L	0.20	4.68	0.95	3.9	2.59
Biochemical Oxygen Demand (BOD)	IIIg/L	0.20	4.06	0.93	3.9	2.39
Biochemical Oxygen Demand	mg/L	6.0	10.5	3	12.7	5.95
Carbonaceous BOD	g/ =	0.0	10.5		12.17	9.99
BOD Carbonaceous	mg/L	6.0	7.0	2.1	8.9	4.08
Chloride in Water by IC						
Chloride (Cl)	mg/L	10	11.4	3.87	38.3	16.83
Conductivity						
Conductivity	umhos/cm	1.0	149	69	317	162.55
Fecal Coliforms						
Fecal Coliforms	MPN/100mL	3	>24200	4	12000	5926.00
Hardness Calculated						
Hardness (as CaCO3)	mg/L	0.30	30.1	16.2	59.9	36.38
Mercury Total		0.00020	<0.0000050	0.000005	0.0003	0.00
Mercury (Hg)	mg/L	0.00020	<0.0000050	0.000005	0.0002	0.00
Nitrate in Water by IC  Nitrate (as N)	mg/l	0.40	0.030	0.044	0.4	0.19
Nitrate (as N)  Nitrate + Nitrite	mg/L	0.40	0.030	0.044	0.4	0.19
Nitrate and Nitrite as N	mg/L	0.45	<0.070	0.07	0.902	0.33
Nitrite in Water by IC	1116/ 2	0.43	40.070	0.07	0.302	0.55
Nitrite (as N)	mg/L	0.20	< 0.010	0.01	0.502	0.14
Oil & Grease - Gravimetric			0.020		0.002	
Oil and Grease	mg/L	5.0	<5.0	2	5.1	3.60
Phenol						
Phenols	mg/L	0.0010	0.0080	0.001	0.0041	0.00
Phosphorus, Total						
Phosphorus (P)	mg/L	0.010	0.745	0.385	2.16	0.89
Sulfate in Water by IC						
Sulfate (SO4)	mg/L	6.0	9.14	1.42	21.9	10.78
Total Metals by ICP-MS		0.0050	0.000	0.0544	0.004	0.40
Aluminium (Al)	mg/L	0.0050	0.289	0.0511	0.204	0.10
Arsenic (As)	mg/L	0.00020	0.00055	0.00029	0.00114	0.00
Calcium (Cd)	mg/L	0.000010	0.0000164 8.96	0.00001 4.66	0.000017 17	0.00 10.82
Calcium (Ca) Chromium (Cr)	mg/L mg/L	0.0010	0.00041	0.001	0.001	0.00
Cobalt (Co)	mg/L	0.0010	0.00041	0.0001	0.00053	0.00
Copper (Cu)	mg/L	0.00020	0.00977	0.00371	0.00494	0.00
Iron (Fe)	mg/L	0.010	0.608	0.247	1.3	0.62
Lead (Pb)	mg/L	0.000090	0.000416	0.000129	0.000418	0.00
Magnesium (Mg)	mg/L	0.010	1.87	0.839	4.26	2.28
Manganese (Mn)	mg/L	0.00030	0.0975	0.0416	0.239	0.10
Nickel (Ni)	mg/L	0.0020	0.00101	0.002	0.002	0.00
Potassium (K)	mg/L	0.020	3.42	1.1	7.54	3.34
Sodium (Na)	mg/L	0.030	8.03	2.24	25.7	11.13
Zinc (Zn)	mg/L	0.0020	0.0117	0.0054	0.0106	0.01
Total Organic Carbon by Combustion					16.	
Total Organic Carbon	mg/L	0.50	10.8	6.3	18.6	10.09
Total Suspended Solids	- /1	13	12.0	-	25	10.00
Total Suspended Solids	mg/L	13	12.0	5	25	10.00
pH	nH I Inite	0.10	6.0	6 07	7.42	7 1 5
pH Renzene	pH Units	0.10	6.9 <0.00050	6.87	7.42	7.15
Benzene Toluene	mg/L mg/L	0.00050	<0.00050	0.0005 0.001	0.0005 0.001	0.00
Ethyl Benzene	mg/L	0.0010	<0.0010	0.001	0.001	0.00
o-Xylene	mg/L	0.00050	<0.00050	0.0005	0.0005	0.00
F1 (C6-C10)	mg/L	0.00030	<0.10	0.0003	0.0003	0.10
F2 (C10-C16)	mg/L	0.10	<0.10	0.1	0.25	0.18
F3 (C16-C34)	mg/L	0.25	0.48	0.1	0.23	0.18
		1	55	J/	J L	2.33
F4 (C34-C50)	mg/L	0.25	< 0.25	0.25	0.25	0.25

#### Baker Lake BAK-5

DAK-3			2018		Statistics	istics	
Parameter	Unit	DL	21-Jun-18	Min	Max	Average	
Alkalinity							
Bicarbonate (HCO3)	mg/L	1.2	38.1	31.4	96	51.53	
Carbonate (CO3)	mg/L	0.60	<0.60	0.6	12	3.45	
Hydroxide (OH)	mg/L	0.34	<0.34	0.34	6.8	1.96	
Total (as CaCO3)	mg/L	1.0	31.2	25.7	79	42.30	
Ammonia by Colour	ma/l	0.20	4.20	2.62	6.2	2.06	
Total (as N)  Biochemical Oxygen Demand (BOD)	mg/L	0.20	4.29	2.63	6.3	3.86	
Biochemical Oxygen Demand	mg/L	6.0	10.9	3.7	15.2	9.35	
Carbonaceous BOD	IIIg/L	0.0	10.9	3.7	13.2	9.33	
BOD Carbonaceous	mg/L	6.0	7.7	2.3	15.9	7.15	
Chloride in Water by IC	6/ =	0.0	7.7	2.0	1515	,115	
Chloride (CI)	mg/L	10	6.93	4.24	47.8	19.54	
Conductivity	Si						
Conductivity	umhos/cm	1.0	95.2	67.3	357	167.03	
Fecal Coliforms							
Fecal Coliforms	MPN/100mL	3	24200	930	19900	6357.50	
Hardness Calculated							
Hardness (as CaCO3)	mg/L	0.30	16.7	14.1	43.7	26.03	
Mercury Total							
Mercury (Hg)	mg/L	0.00020	<0.0000050	0.000005	0.0002	0.00005	
Nitrate in Water by IC							
Nitrate (as N)	mg/L	0.40	0.030	0.035	0.672	0.31	
Nitrate + Nitrite							
Nitrate and Nitrite as N	mg/L	0.45	<0.070	0.07	2.29	0.79	
Nitrite in Water by IC					1		
Nitrite (as N)	mg/L	0.20	<0.010	0.01	1.62	0.47	
Oil & Grease - Gravimetric	,	5.0	5.0	2.0	<b>5</b> 0	2.50	
Oil and Grease	mg/L	5.0	<5.0	2.0	5.0	3.50	
Phenol		0.0040	0.0444	0.004	0.005	0.0024	
Phenols	mg/L	0.0010	0.0111	0.001	0.005	0.0024	
Phosphorus, Total	ma/l	0.010	0.582	0.401	2.32	1.00	
Phosphorus (P)  Sulfate in Water by IC	mg/L	0.010	0.562	0.401	2.32	1.00	
Sulfate (SO4)	mg/L	6.0	2.55	1.36	3.5	2.52	
Total Metals by ICP-MS	mg/ L	0.0	2.55	1.50	5.5	2.52	
Aluminium (Al)	mg/L	0.0050	0.104	0.049	0.0728	0.06	
Arsenic (As)	mg/L	0.00020	0.00035	0.00023	0.00158	0.00074	
Cadmium (Cd)	mg/L	0.000010	0.0000174	0.00001	0.00001	0.00001	
Calcium (Ca)	mg/L	0.10	5.00	4.33	11.9	7.44	
Chromium (Cr)	mg/L	0.0010	0.00021	0.001	0.001	0.00100	
Cobalt (Co)	mg/L	0.00020	0.00019	0.0002	0.00061	0.00036	
Copper (Cu)	mg/L	0.00020	0.0104	0.00455	0.00597	0.005	
Iron (Fe)	mg/L	0.010	0.223	0.286	0.808	0.57	
Lead (Pb)	mg/L	0.000090	0.000224	0.000132	0.00022	0.00017	
Magnesium (Mg)	mg/L	0.010	1.02	0.8	3.37	1.81	
Manganese (Mn)	mg/L	0.00030	0.0339	0.0276	0.166	0.084	
Nickel (Ni)	mg/L	0.0020	0.00076	0.002	0.0022	0.0021	
Potassium (K)	mg/L	0.020	2.23	1.25	9.43	3.90	
Sodium (Na)	mg/L	0.030	5.21	2.82	32.9	13.28	
Zinc (Zn)	mg/L	0.0020	0.0105	0.0049	0.0105	0.007	
Total Organic Carbon by Combustion		0.55		6 :5	25.5	42.5	
Total Organic Carbon	mg/L	0.50	13.3	6.45	25.6	13.04	
Total Suspended Solids		4.2	6.3	- 0	20.0	12.25	
Total Suspended Solids	mg/L	13	6.3	5.0	28.0	12.25	
			6.0	6.73	7.77	7 1 1	
pH	nH Helte	0.10		6.73	7.67	7.11	
pH	pH Units	0.10	6.8		0	0.00	
pH Benzene	mg/L	0.00050	N/A	0	0	0.00	
pH Benzene Toluene	mg/L mg/L	0.00050 0.0010	N/A N/A	0 0	0	0.00	
pH Benzene Toluene Ethyl Benzene	mg/L mg/L mg/L	0.00050 0.0010 0.00050	N/A N/A N/A	0 0 0	0	0.00	
pH Benzene Toluene Ethyl Benzene o-Xylene	mg/L mg/L mg/L mg/L	0.00050 0.0010 0.00050 0.00050	N/A N/A N/A N/A	0 0 0	0 0 0	0.00 0.00 0.00	
pH Benzene Toluene Ethyl Benzene o-Xylene F1 (C6-C10)	mg/L mg/L mg/L mg/L mg/L	0.00050 0.0010 0.00050 0.00050 0.10	N/A N/A N/A N/A N/A	0 0 0 0	0 0 0 0	0.00 0.00 0.00 0.00	
pH Benzene Toluene Ethyl Benzene o-Xylene F1 (C6-C10) F2 (C10-C16)	mg/L mg/L mg/L mg/L mg/L mg/L	0.00050 0.0010 0.00050 0.00050 0.10 0.25	N/A N/A N/A N/A N/A	0 0 0 0 0	0 0 0 0	0.00 0.00 0.00 0.00 0.00	
pH Benzene Toluene Ethyl Benzene o-Xylene F1 (C6-C10)	mg/L mg/L mg/L mg/L mg/L	0.00050 0.0010 0.00050 0.00050 0.10	N/A N/A N/A N/A N/A	0 0 0 0	0 0 0 0	0.00 0.00 0.00 0.00	

Appendix H



Licensee

#### WATER LICENCE INSPECTION FORM

Licensee Representative

Original	
Follow-Up	Report

Hamlet of Baker Lake	е		Sheldon Dorey			
Licence No. / Expiry			Representative's 1	itle		
3BM-BAK1526/ December 6, 2026 Senior Admi		Senior Adminis	nistrative Officer			
Land / Other Authorization	ons		Land / Other Auth	orizations		
Date of Inspection			Inspector			
18/07/2018			Atuat Shouldic	e		
<b>Activities Inspected</b>						
☐ Camp ☐ Roads/Hauling	☐ Drilling ☑ Other: Waste Dispo	☐ Mining sal Facility	☐ Constructi ☑ Other: Wa	on Re ter Treatment Facilit	clamation v	☐ Fuel Storage
	<u>.</u>	,			,	
Conditions:	A- Acceptable	<b>U-Unacceptable</b>	C-Concern	NI-Not Inspe	ected NA-	Not applicable
PART:				Item No.*	Condition	Observation No.*
A: SCOPE, DEFINITIO	NS AND ENFORCEME	NT			А	
B: GENERAL CONDITIONS		1,3,5	A,U,A	1,2,3		
C: CONDITIONS APPL	YING TO WATER US	E		2	С	2
D: CONDITIONS APP	LYING TO WASTE DIS	POSAL		7,8	A,A	4,5

stThe item number corresponds with specific conditions within the licence and the observation number corresponds with specific comments provided below.

2,3,4

2

1.3

U,U,U

U

A,C

6.7

8

9.2

Samples taken by Inspector:	Location(s):
☐ Yes ⊠ No	

|--|

#### **BACKGROUND**

The Hamlet of Baker Lake is in the Kivalliq Region of Nunavut's mainland, located approximately 320 km West of Hudson Bay. The Hamlet is located at the mouth of the Thelon River on the North shore of Baker Lake. The population in 2016 was 2063.

#### **Inspector's Statement**

On July 18<sup>th</sup>, 2018, a water licence inspection was conducted of water licence no. 3BM-BAK1526 issued to the Hamlet of Baker Lake. Paul Naryarnik, Hamlet of Baker Lake and Connor Faulkner, Community and Government Services assisted with the inspection.

#### Observation

- 1. The Annual report is available for review on the Nunavut Water Board's FTP website.
- The flow meter at the Water Treatment Plant (WTP) is not functioning properly to allow the inspector to record accurate water use. Water use is recorded by an on tap delivery system. The inspector requests clarity on how the utilidor water use is captured in the annual water use totals.
- 3. The WTP and Solid Waste Facility (SWF) are equipped with signage.

E: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION

G: CONDITIONS APPLYING TO ABANDONMENT AND RECLAMATION

F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

H: CONDITIONS APPLYING TO MONITORING PROGRAM

- 4. The Hamlet has reorganized the SWF and securing hazardous materials. Hazardous waste is being segregated and stored in sea cans.
- 5. With the assistances of Agnico Eagle Mine, the Hamlet is backhauling hazard waste this year on Agnico Eagle Mine's ships, to be properly treated and disposed of.
- 6. A revised Operation and Maintenance for the Water, Sewage and Solid Waste Facility Plan is not available for review on the Nunavut Water Board's FTP website.
- 7. An engineering report, as required by part F item 3 and 4 was not available for review.
- 8. A revised Abandonment and Restoration for the Water, Sewage and Solid Waste Facility Plan is not available for review on the Nunavut Water Board's FTP website.
- 9. The 2017 Monitoring Program results were submitted with the Annual report.



Report #2018-KIV02-AS Page 1 of 3

SECTION 2	Comments	Non-Compliance with Act or Licence	Action Required		
Concerns related to	Water Licence no. 3BN	I-BAK1526;			
Part B Item 3: The Li	icensee shall install a flo	w meter to measure water use.			
		meter at the Water Treatment Plant. The Licensee will	install an appropriate measuring		
device before the te	rm of the next inspection	on.			
Part C Item 2: The Li	censee shall not exceed	one hundred thousand (100,000) cubic meters annually			
		ow water use is metered to facilities on the utilidor syst	_		
2019.	,	,	, , , , , , , , , , , , , , , , , , , ,		
Part F Item 2: The Li	censee shall submit a re	vised Operation and Maintenance for the Water, Sewag	ge and Solid Waste Facility Plan.		
		s required by this condition. The Licensee will submit a	revised Plan as required, no later		
than March 31 <sup>st</sup> , 202	19 to the Nunavut Wate	r Board.			
		Ingineer's report annually.	the the 2010 Americal manager		
The Licensee shall st	ubmit, to the Nunavut v	Vater Board, the report as required by this condition, w	itii tile 2018 Allilual report.		
Part F Item 4: The Lie	censee shall submit a Ge	eotechnical Engineer's report annually.			
		Vater Board, the report as required by this condition, wi	ith the 2018 Annual report.		
Part G Item 2: The Licensee shall submit a revised Abandonment and Restoration for the Water, Sewage and Solid Waste Facility					
<u>Plan.</u>					
The Licensee has failed to submit the Plan as required by this condition. The Licensee will submit a revised Plan as required, no later					
than March 31 <sup>st</sup> , 2019 to the Nunavut Water Board.					
Part H Item 3: The Li	icensee shall record the	daily, monthly and annual water use quantities.			
	The Licensee has failed to maintain the flow meter at the Water Treatment Plant. The Licensee will install an appropriate measuring				
device before the term of the next inspection.					
SECTION 3	Comments	Non-Compliance with Act or Licence	Action Required		
	= =	management of the Solid Waste Facility in 2018. The Ha	amlet is in line to fulfill the goals		
outlined in the Wate	er Licence Compliance W	Vorking Group.			

Licensee or Representative	Inspector's Name
Sheldon Dorey	Atuat Shouldice
Signature	Signature
	Sent Electronically
Date	Date
	February 12th, 2018

CC: Licensing Department, NWB

Justin Hack, Manager of Field Operations, CIRNAC

Megan Lusty, Municipal Works, CGS



Report #2018-KIV02-AS Page **2** of **3** 

