YEAR BEING REPORTED: 2017

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water Licence No. **3AM-ARV1016** issued to the **Hamlet of Arviat**.

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 results for Monitoring Stations ARV-1, as well as detailed chemical, physical and biological analysis required at ARV-2a, ARV-4, ARV-5 and ARV-6 (for the months of July to September).

Month Reported	Quantity of Water Obtained from all sources (m³)	Quantity of Sewage Waste Discharged (m³)
January	8,551,359.00	Same
February	7,526,912.30	Same
March	7,706,508.10	Same
April	8,006,221.60	Same
Мау	8,215,996.30	Same
June	8,085,839.80	Same
July	8,500,348.20	Same
August	8,537,761.00	Same
September	8,352,867.00	Same
October	8,552,732.30	Same
November	8,283,353.50	Same
December	8,430,645.40	Same
ANNUAL TOTAL	98,750,554.50	98,750,554.50

Note: No meter exists to measure the sewage discharge volume, therefore water consumption volume is considered as equal volume to the Sewage discharge volume.

- 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;
 - Vehicles were shredded for disposal by a metals shredder bought by the Hamlet of Arviat.
 - Segregation continues to improve at the Solid Waste Site and Bulky Metals Site. Batteries are collected and being stored in a seacan. Non-metals have been removed from the Bulky Metals Dump and brought to the Solid Waste Site. A wood recycling area is in use as well as an area for old tires.





Page 2 of 4

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

The following spills were reported to the NT-NU Spill Report Line and are listed on the Hazardous Materials Spills Database for Arviat in 2016:

Spill No.	Date	Site Description	Commodity
2017053	2017-02-23	New water treatment plant	Fuel
2017146	2017-05-04	700 E - 9th Ave / 385 E	Heating Fuel P-40
2017163	2017-05-15	Alliance Church	Heating Fuel P-50
2017177	2017-05-26	QEC Arviat Power Plant	Diesel P-50
2017192	2017-06-01	Arviat Health Centre Fuel Tank	Heating Fuel P-50
2017193	2017-06-01	John Arnalukuaq High School Fuel Tank	Heating Fuel P-50
2017194	2017-06-02	Aviat Health Centre Heat Trace	Dowfrost Heat Transfer Fluid
2017211	2017-06-16	Arviat Paolei Hotel	Heating Fuel P-50
2017227	2017-06-28	Shoreline by RCMP	Fuel
2017229	2017-06-29	Arviat	Heating Fuel P-50
2017302	2017-08-17	Arviat, 701 1st Avenue	Heating Fuel P-50
2017304	2017-08-18	Aviat, Fuel deliver staging area	Gasoline
2017315	2017-08-29	Unit 614, 407 6th Avenue, Arviat, NT, 61 06 31.05N 94 03 55.82W	Heating Fuel P-50
2017422	2017-11-10	Arviat Health Center exterior fuel tank asset #113635	Heating Fuel P-50

- vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
 - A new water treatment plant is currently in the design phase, to be constructed during the summer, 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;
 - none
- 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.
 - New Water Treatment Plant O&M Manual will be submitted following construction completion.

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 3AM-ARV1016 INAC Inspection took place on August 09, 2017. A copy of the inspection report can be found in Appendix K.

Appendix A: ARV-4 Effluent Quality Limits – 1 page

Appendix B: Weekly Inspections at Monitoring Program Stations – 1 page

Appendix C: Certificate of Analysis June 19, 2017–18 pages

Appendix D: Certificate of Analysis July 12, 2017 – 18 pages

Appendix E: Certificate of Analysis August 10, 2017 – 15 pages

Appendix F: Certificate of Analysis September 19, 2017 – 14 pages

Appendix G: Old Sewage Lagoon Effluent Quality Limits – 1 page

Appendix H: Certificate of Analysis August 10, 2017 – 8 pages

Appendix I: Hazardous Materials Spill Database, Arviat 2017 – 1 page

Appendix J: Arviat 2017 Sampling Summary – 6 pages

Appendix K: 2017 INAC Inspection Report – 1 page

3AM-ARV1016 Arviat Monitoring Program Results 2017 Part D, Item 2; ARV-4 Effluent Quality limits

Parameter	Maximum Concentration		AR	V-4	
Parameter	of any grab sample	19-Jun-17	12-Jul-18	10-Aug-17	19-Sep-17
BOD ₅	80 mg/L	27.2	215	50	5.6
Total Suspended Solids	100 mg/L	28	1670	272	13.0
Fecal Coliforms	1 x 10 ⁴ CFU/100mL	990	2050	230	190
Oil & Grease	no visible sheen	5	5	5	5.5
рН	between 6 and 9	7.49	6.76	8.82	7.18

Exceeds effluent quality limits

ARV-2-Near Garbage

ARV-F-Near Medes Dump
ARV-6-Near Gorange

Part H, Item 8: Weekly Inspections at Monitoring Program Sations, May to August Arviat, NU

Nunavut Water Board Licence No. 3AM-ARV1016

			ARV-2a			ARV-4			ARV-5			ARV-6			
		Water	Present	Water Present (check)	Water	Water Present (check)	(check)	Water	Water Present (check)	(check)	Water	Water Present (check)	(check)		
Week	Starting Date	Yes	No No	Frozen	Yes	No	Frozen	Yes	No	Frozen	Yes	S	Frozen	Checked By	
н	01-May-17			-1			1			-7			1.	laure	
2	08-May-17			7)			7			1	7,007	
ж	15-May-17			7			-			-			1		
4	22-May-17			7]			1			1	200	
5	29-May-17	7)	7					1	- Trans	
9	05-Jun-17	7					1	7					1	1	
7	12-Jun-17	7			7			7			7			Color	
80	19-Jun-17	/			7			7			1			Joseph John John John John John John John Joh	
6	26-Jun-17	7			7			7			1			College	
10	03-Jul-17	7)			7			7			Cherry Cherry	
#	10-Jul-17	1			7			7						(xur	
12	17-Jul-17	7			7			7	1		7	-		1	FILE LEVALIALIA
13	24-Jul-17	7			7	\		7			7				
14	31-Jul-17	\			>			7			4	7			
15	07-Aug-17	1			7			1			W	7		No. of	
16	14-Aug-17	7			į	! CER	- Separ	2000	3			7		(Orerive	
17	21-Aug-17	-				7					7		7	(mar)	
18	28-Aug-17														

Monitoring Program Station Locations:

ARV-4: Effluent from the discharge point of the Sewage Disposal Facility (end of wetland) ARV-2a: Effluent discharge from the Discharge Point of the Solid Waste Disposal Facility

ARV-6: Discharge from the Hazardous Waste Storage Area ARV-5: Discharge from the Bulky Metal Waste Area

^{*} Fax Sheets Weekly to Connor Faulkner at CGS- Rankin Inlet. Fax: (867) 645-8141



Hamlet of Arviat

ATTN: STEVE ENGLAND

PO Box 150

Arviat NU XOC 0E0

Date Received: 20-JUN-17

Report Date: 07-JUL-17 14:14 (MT)

Version: FINAL

Client Phone: 867-857-2841

Certificate of Analysis

Lab Work Order #: L1945016
Project P.O. #: NOT SUBMITTED

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

Whe

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
14045046 4 ADV 2							
L1945016-1 ARV-2 Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER BTEX plus F1-F4							
BTX plus F1 by GCMS Benzene	<0.00050		0.00050	mg/L		22-JUN-17	R3756363
Toluene	<0.0010		0.0010	mg/L		22-JUN-17	R3756363
Ethyl benzene	<0.00050		0.00050	mg/L		22-JUN-17	R3756363
o-Xylene	<0.00050		0.00050	mg/L		22-JUN-17	R3756363
m+p-Xylenes	<0.00040		0.00040	mg/L		22-JUN-17	R3756363
F1 (C6-C10)	<0.10		0.10	mg/L		22-JUN-17	R3756363
Surrogate: 4-Bromofluorobenzene (SS)	97.7		70-130	%		22-JUN-17	R3756363
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	21-JUN-17	22-JUN-17	R3752853
F3 (C16-C34)	<0.25		0.25	mg/L	21-JUN-17	22-JUN-17	R3752853
F4 (C34-C50)	<0.25		0.25	mg/L	21-JUN-17	22-JUN-17	R3752853
Surrogate: 2-Bromobenzotrifluoride	83.0		60-140	%	21-JUN-17	22-JUN-17	R3752853
CCME Total Hydrocarbons F1-BTEX	<0.10		0.10	mg/L		04-JUL-17	
F2-Naphth	<0.10		0.10	mg/L		04-JUL-17 04-JUL-17	
F3-PAH	<0.25		0.10	mg/L		04-JUL-17	
Total Hydrocarbons (C6-C50)	<0.38		0.23	mg/L		04-JUL-17	
Sum of Xylene Isomer Concentrations	10.00		0.00	9/ =		0.002	
Xylenes (Total)	<0.00064		0.00064	mg/L		26-JUN-17	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Acenaphthene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Acenaphthylene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Anthracene Acridine	<0.000010		0.000010	mg/L	21-JUN-17 21-JUN-17	29-JUN-17	R3758825
Benzo(a)anthracene	<0.000020 <0.000010		0.000020 0.000010	mg/L mg/L	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825 R3758825
Benzo(a)pyrene	<0.000010		0.000010	mg/L	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825
Benzo(b&j)fluoranthene	<0.000010		0.0000030	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(g,h,i)perylene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Chrysene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Dibenzo(a,h)anthracene	<0.000050		0.0000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Fluoranthene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Fluorene	0.000021		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Naphthalene	<0.000050		0.000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Phenanthrene	<0.000050		0.000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Pyrene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Quinoline	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	21-JUN-17	29-JUN-17	R3758825
Surrogate: Acenaphthene d10 Surrogate: Acridine d9	78.0		40-130	% %	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825
Surrogate: Actione d9 Surrogate: Chrysene d12	92.9 70.1		40-130 40-130	%	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825 R3758825
Surrogate: Naphthalene d8	75.3		40-130	% %	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825
Surrogate: Phenanthrene d10	73.6		40-130	% %	21-JUN-17	29-JUN-17 29-JUN-17	R3758825
Nunavut WW Group 1	75.5		-0-100	70	2. 0014-17	20 0014-17	1.07.00020
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	243		1.2	mg/L		21-JUN-17	
Alkalinity, Carbonate				-			
•	1					1	· · · · · · · · · · · · · · · · · · ·

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1945016-1 ARV-2							
Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER							
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		21-JUN-17	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		21-JUN-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	199		1.0	mg/L		20-JUN-17	R3751986
Ammonia by colour							
Ammonia, Total (as N) Biochemical Oxygen Demand (BOD)	0.90		0.10	mg/L		27-JUN-17	R3757609
Biochemical Oxygen Demand	51		20	mg/L		21-JUN-17	R3756636
Carbonaceous BOD BOD Carbonaceous	46		20	mg/L		21-JUN-17	R3756636
Chloride in Water by IC Chloride (Cl)	422		5.0	mg/L		21-JUN-17	R3756435
Conductivity Conductivity				umhos/cm		20-JUN-17	
Fecal coliforms, 1:10 dilution by QT97	1920		1.0	ummos/cm		20-JUN-17	R3751986
Fecal Coliforms Hardness Calculated	50		10	MPN/100mL		20-JUN-17	R3752033
Hardness (as CaCO3)	520	нтс	0.25	mg/L		23-JUN-17	
Mercury Total Mercury (Hg)-Total	0.0000122		0.0000050	mg/L	21-JUN-17	21-JUN-17	R3752879
Nitrate in Water by IC Nitrate (as N)	0.25		0.20	mg/L		21-JUN-17	R3756435
Nitrate+Nitrite Nitrate and Nitrite as N	0.25		0.22	mg/L		27-JUN-17	
Nitrite in Water by IC		DI M					D0750405
Nitrite (as N) Oil & Grease - Gravimetric	<0.10	DLM	0.10	mg/L		21-JUN-17	R3756435
Oil and Grease	<5.0		5.0	mg/L		23-JUN-17	R3755066
Phenol (4AAP) Phenols (4AAP)	0.0041		0.0010	mg/L		29-JUN-17	R3761744
Phosphorus, Total Phosphorus (P)-Total	0.71		0.10	mg/L		22-JUN-17	R3755005
Sulfate in Water by IC						04 """ :=	
Sulfate (SO4)	322		3.0	mg/L		21-JUN-17	R3756435
Total Metals by ICP-MS Aluminum (Al)-Total	0.0353		0.0050	ma/l	22-JUN-17	22-JUN-17	R3753846
Arsenic (As)-Total	0.0252 0.00403		0.0050 0.00020	mg/L mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846 R3753846
Cadmium (Cd)-Total	0.00403		0.00020	_	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846 R3753846
Calcium (Ca)-Total	133		0.000010	mg/L mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846 R3753846
Chromium (Cr)-Total	<0.0010		0.10	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Cobalt (Co)-Total	0.00173		0.0010	mg/L	22-JUN-17	22-JUN-17	R3753846
Copper (Cu)-Total	0.00173		0.00020	mg/L	22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Iron (Fe)-Total	1.91		0.00020	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Lead (Pb)-Total	0.00319		0.000090	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Magnesium (Mg)-Total	45.5		0.00090	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Manganese (Mn)-Total	0.348		0.00030		22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Nickel (Ni)-Total				mg/L	22-JUN-17 22-JUN-17		
Potassium (K)-Total	0.0077		0.0020	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
	44.9		0.020	mg/L			R3753846
Sodium (Na)-Total	259		0.030	mg/L	22-JUN-17	22-JUN-17	R3753846
Zinc (Zn)-Total	0.0782		0.0020	mg/L	22-JUN-17	22-JUN-17	R3753846
Total Organic Carbon by Combustion							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1945016-1 ARV-2							
Matrix: WATER							
Total Organic Carbon by Combustion Total Organic Carbon	38.4		0.50	mg/L		25-JUN-17	R3756206
Total Suspended Solids							
Total Suspended Solids	48		20	mg/L		26-JUN-17	R3756788
pH	0.44		0.40	nl l unito		20-JUN-17	D0754000
pH	8.11		0.10	pH units		20-JUN-17	R3751986
L1945016-2 ARV-4							
Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS	<0.00050		0.00050			22 1111 47	D075000
Benzene Toluene			0.00050	mg/L		22-JUN-17 22-JUN-17	R3756363
Ethyl benzene	<0.0010 <0.00050		0.0010 0.00050	mg/L mg/L		22-JUN-17 22-JUN-17	R3756363 R3756363
o-Xylene	<0.00050		0.00050	mg/L		22-JUN-17 22-JUN-17	R3756363
m+p-Xylenes	<0.00030		0.00030	mg/L		22-JUN-17	R3756363
F1 (C6-C10)	<0.10		0.00040	mg/L		22-JUN-17	R3756363
Surrogate: 4-Bromofluorobenzene (SS)	94.0		70-130	%		22-JUN-17	R3756363
CCME PHC F2-F4 in Water					04 11111 47		
F2 (C10-C16)	<0.10		0.10	mg/L	21-JUN-17	22-JUN-17	R3752853
F3 (C16-C34) F4 (C34-C50)	0.34		0.25	mg/L	21-JUN-17 21-JUN-17	22-JUN-17	R3752853
Surrogate: 2-Bromobenzotrifluoride	<0.25 83.3		0.25 60-140	mg/L %	21-JUN-17 21-JUN-17	22-JUN-17 22-JUN-17	R3752853 R3752853
CCME Total Hydrocarbons					21-3011-17		K3/32033
F1-BTEX	<0.10		0.10	mg/L		04-JUL-17	
F2-Naphth	<0.10		0.10	mg/L		04-JUL-17	
F3-PAH	0.34		0.25	mg/L		04-JUL-17	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		04-JUL-17	
Sum of Xylene Isomer Concentrations Xylenes (Total)	<0.00064		0.00064	mg/L		26-JUN-17	
Deliverementie Historian bane (DAHe)							
Polyaromatic Hydrocarbons (PAHs) 1-Methyl Naphthalene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Acenaphthene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Acenaphthylene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Anthracene	<0.00010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Acridine	0.000042		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(a)anthracene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Chrysene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Fluoranthene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Fluorene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Naphthalene	<0.000050		0.000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Phenanthrene	<0.000050		0.000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Pyrene Quinoline	<0.000010		0.000010	mg/L	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825
Quinollile	<0.000020		0.000020	mg/L	21-JUN-17	23-JUN-17	R3758825

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1945016-2 ARV-4							
Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER							
Polyaromatic Hydrocarbons (PAHs) B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	21-JUN-17	29-JUN-17	R3758825
Surrogate: Acenaphthene d10	71.1		40-130	%	21-JUN-17	29-JUN-17	R3758825
Surrogate: Acridine d9	80.0		40-130	%	21-JUN-17	29-JUN-17	R3758825
Surrogate: Chrysene d12	55.9		40-130	%	21-JUN-17	29-JUN-17	R3758825
Surrogate: Naphthalene d8	66.9		40-130	%	21-JUN-17	29-JUN-17	R3758825
Surrogate: Phenanthrene d10 Nunavut WW Group 1	66.8		40-130	%	21-JUN-17	29-JUN-17	R3758825
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	224		1.2	mg/L		21-JUN-17	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		21-JUN-17	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		21-JUN-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	183		1.0	mg/L		20-JUN-17	R3751986
Ammonia by colour Ammonia, Total (as N)	19.1		2.0	mg/L		27-JUN-17	R3757609
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	27.2		6.0	mg/L		21-JUN-17	R3756636
Carbonaceous BOD							
BOD Carbonaceous Chloride in Water by IC	21.9		6.0	mg/L		21-JUN-17	R3756636
Chloride (CI) Conductivity	146		1.0	mg/L		21-JUN-17	R3756435
Conductivity	817		1.0	umhos/cm		20-JUN-17	R3751986
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	990		10	MPN/100mL		20-JUN-17	R3752033
Hardness Calculated Hardness (as CaCO3)	87.6	HTC	0.25	mg/L		23-JUN-17	
Mercury Total Mercury (Hg)-Total	0.0000052		0.0000050	mg/L	21-JUN-17	21-JUN-17	R3752879
Nitrate in Water by IC Nitrate (as N)	0.494		0.040	mg/L		21-JUN-17	R3756435
Nitrate+Nitrite Nitrate and Nitrite as N	0.540		0.070	mg/L		27-JUN-17	
Nitrite in Water by IC Nitrite (as N)	0.047		0.020	mg/L		21-JUN-17	R3756435
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		23-JUN-17	R3755066
Phenol (4AAP) Phenols (4AAP)	0.0040		0.0010	mg/L		29-JUN-17	R3761744
Phosphorus, Total Phosphorus (P)-Total	3.91		0.10	mg/L		22-JUN-17	R3755005
Sulfate in Water by IC							
Sulfate (SO4) Total Metals by ICP-MS	8.78		0.60	mg/L		21-JUN-17	R3756435
Aluminum (Al)-Total	0.104		0.0050	mg/L	22-JUN-17	22-JUN-17	R3753846
Arsenic (As)-Total	0.00590		0.00020	mg/L	22-JUN-17	22-JUN-17	R3753846
Cadmium (Cd)-Total	0.000052		0.000010	mg/L	22-JUN-17	22-JUN-17	R3753846
Calcium (Ca)-Total	15.8		0.10	mg/L	22-JUN-17	22-JUN-17	R3753846
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	22-JUN-17	22-JUN-17	R3753846
Cobalt (Co)-Total	0.00256		0.00020	mg/L	22-JUN-17	22-JUN-17	R3753846

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1945016-2 ARV-4							
Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER							
Total Metals by ICP-MS Copper (Cu)-Total	0.0213		0.00020	mg/L	22-JUN-17	22-JUN-17	R3753846
Iron (Fe)-Total	3.51		0.010	mg/L	22-JUN-17	22-JUN-17	R3753846
Lead (Pb)-Total	0.000993		0.000090	mg/L	22-JUN-17	22-JUN-17	R3753846
Magnesium (Mg)-Total	11.7		0.010	mg/L	22-JUN-17	22-JUN-17	R3753846
Manganese (Mn)-Total	0.324		0.00030	mg/L	22-JUN-17	22-JUN-17	R3753846
Nickel (Ni)-Total	0.0072		0.0020	mg/L	22-JUN-17	22-JUN-17	R3753846
Potassium (K)-Total	19.6		0.020	mg/L	22-JUN-17	22-JUN-17	R3753846
Sodium (Na)-Total	96.2		0.030	mg/L	22-JUN-17	22-JUN-17	R3753846
Zinc (Zn)-Total	0.0115		0.0020	mg/L	22-JUN-17	22-JUN-17	R3753846
Total Organic Carbon by Combustion							
Total Organic Carbon	34.7		0.50	mg/L		25-JUN-17	R3756206
Total Suspended Solids	22		22	D		00 1111 47	D0750700
Total Suspended Solids	28		20	mg/L		26-JUN-17	R3756788
pH pH	7.49		0.10	pH units		20-JUN-17	R3751986
_ ·	7.49		0.10	pri units		20-JUN-17	K3/31966
L1945016-3 ARV-5							
Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS Benzene	0.00050		0.00050	mg/L		23-JUN-17	D0754050
Toluene	<0.00050 <0.0010		0.00050 0.0010	mg/L		23-JUN-17 23-JUN-17	R3754956 R3754956
Ethyl benzene	<0.0010		0.0010	mg/L		23-JUN-17 23-JUN-17	R3754956
o-Xylene	<0.00050		0.00050	mg/L		23-JUN-17	R3754956
m+p-Xylenes	<0.00040		0.00040	mg/L		23-JUN-17	R3754956
F1 (C6-C10)	<0.10		0.10	mg/L		23-JUN-17	R3754956
Surrogate: 4-Bromofluorobenzene (SS)	99.1		70-130	%		23-JUN-17	R3754956
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	21-JUN-17	22-JUN-17	R3752853
F3 (C16-C34)	<0.25		0.25	mg/L	21-JUN-17	22-JUN-17	R3752853
F4 (C34-C50)	<0.25		0.25	mg/L	21-JUN-17	22-JUN-17	R3752853
Surrogate: 2-Bromobenzotrifluoride	92.2		60-140	%	21-JUN-17	22-JUN-17	R3752853
CCME Total Hydrocarbons	2.42		0.40	D		04 !!!! 47	
F1-BTEX	<0.10		0.10	mg/L		04-JUL-17	
F2-Naphth F3-PAH	<0.10 <0.25		0.10 0.25	mg/L mg/L		04-JUL-17 04-JUL-17	
Total Hydrocarbons (C6-C50)	<0.25 <0.38		0.25	mg/L		04-JUL-17 04-JUL-17	
Sum of Xylene Isomer Concentrations	\0.30		0.30	mg/L		0+ 00L-17	
Xylenes (Total)	<0.00064		0.00064	mg/L		23-JUN-17	
				<i>3</i> -			
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Acenaphthene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Acenaphthylene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Anthracene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Acridine	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(a)anthracene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825

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

Chrysene	Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
Sampled By: CLIENT on 19-JUN-17 @ 09:35 Matrix: WATER Polyaromatic Hydrocarbons (PAHs) Benzo(Nillocrambine								

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
14045040 0 47045							
L1945016-3 ARV-5							
Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER							
Phosphorus, Total Phosphorus (P)-Total	0.038		0.010	mg/L		22-JUN-17	R3755005
Sulfate in Water by IC	0.036		0.010	IIIg/L		22-30IN-17	K3755005
Sulfate (SO4)	14.4		3.0	mg/L		21-JUN-17	R3756435
Total Metals by ICP-MS			0.0				110100100
Aluminum (AI)-Total	0.0576		0.0050	mg/L	22-JUN-17	22-JUN-17	R3753846
Arsenic (As)-Total	0.00068		0.00020	mg/L	22-JUN-17	22-JUN-17	R3753846
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	22-JUN-17	22-JUN-17	R3753846
Calcium (Ca)-Total	40.6		0.10	mg/L	22-JUN-17	22-JUN-17	R3753846
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	22-JUN-17	22-JUN-17	R3753846
Cobalt (Co)-Total	0.00030		0.00020	mg/L	22-JUN-17	22-JUN-17	R3753846
Copper (Cu)-Total	0.00067		0.00020	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Iron (Fe)-Total Lead (Pb)-Total	3.45 0.000091		0.010 0.000090	mg/L mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846 R3753846
Magnesium (Mg)-Total	70.0		0.00090	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846 R3753846
Manganese (Mn)-Total	0.226		0.00030	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Nickel (Ni)-Total	<0.0020		0.0000	mg/L	22-JUN-17	22-JUN-17	R3753846
Potassium (K)-Total	14.5		0.020	mg/L	22-JUN-17	22-JUN-17	R3753846
Sodium (Na)-Total	442		0.030	mg/L	22-JUN-17	22-JUN-17	R3753846
Zinc (Zn)-Total	0.0050		0.0020	mg/L	22-JUN-17	22-JUN-17	R3753846
Total Organic Carbon by Combustion							
Total Organic Carbon	8.95		0.50	mg/L		25-JUN-17	R3756206
Total Suspended Solids				,,		00 11 11 47	D
Total Suspended Solids	<20		20	mg/L		26-JUN-17	R3756788
pH pH	7.07		0.10	pH units		20-JUN-17	R3751986
L1945016-4 ARV-6	7.07		0.10	pri dinto		20 0011 17	110701300
Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		23-JUN-17	R3754956
Toluene	0.0035		0.0010	mg/L		23-JUN-17	R3754956
Ethyl benzene	<0.00050		0.00050	mg/L		23-JUN-17	R3754956
o-Xylene	<0.00050		0.00050	mg/L		23-JUN-17	R3754956
m+p-Xylenes	<0.00040		0.00040	mg/L		23-JUN-17	R3754956
F1 (C6-C10)	<0.10		0.10	mg/L		23-JUN-17	R3754956
Surrogate: 4-Bromofluorobenzene (SS)	95.5		70-130	%		23-JUN-17	R3754956
CCME PHC F2-F4 in Water F2 (C10-C16)	<0.10		0.10	mg/L	21-JUN-17	22-JUN-17	R3752853
F3 (C16-C34)	<0.10		0.10	mg/L	21-JUN-17 21-JUN-17	22-JUN-17 22-JUN-17	R3752853
F4 (C34-C50)	<0.25		0.25	mg/L	21-JUN-17	22-JUN-17	R3752853
Surrogate: 2-Bromobenzotrifluoride	86.2		60-140	%	21-JUN-17	22-JUN-17	R3752853
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		04-JUL-17	
F2-Naphth	<0.10		0.10	mg/L		04-JUL-17	
F3-PAH	<0.25		0.25	mg/L		04-JUL-17	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		04-JUL-17	
Sum of Xylene Isomer Concentrations Xylenes (Total)	<0.00064		0.00064	mg/L		23-JUN-17	
Polygromatic Hydrocarbone (PAUs)							
Polyaromatic Hydrocarbons (PAHs)							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
1.1045016.4 ADV. 6							
L1945016-4 ARV-6							
Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER							
Polyaromatic Hydrocarbons (PAHs) 1-Methyl Naphthalene	0.000054		0.000000	ma/l	21-JUN-17	29-JUN-17	Dazenne
2-Methyl Naphthalene	0.000054		0.000020 0.000020	mg/L mg/L	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825 R3758825
Acenaphthene	<0.000047		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Acenaphthylene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Anthracene	<0.000010		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Acridine	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(a)anthracene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(a)pyrene	<0.000050		0.0000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(b&j)fluoranthene	<0.00010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Chrysene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Dibenzo(a,h)anthracene	<0.000050		0.0000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Fluoranthene	<0.000020		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Fluorene	0.000024		0.000020	mg/L	21-JUN-17	29-JUN-17	R3758825
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
Naphthalene	<0.000050		0.000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Phenanthrene	<0.000050		0.000050	mg/L	21-JUN-17	29-JUN-17	R3758825
Pyrene Quinoline	<0.000010		0.000010	mg/L	21-JUN-17	29-JUN-17	R3758825
B(a)P Total Potency Equivalent	<0.000020 <0.000030		0.000020	mg/L	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825 R3758825
Surrogate: Acenaphthene d10	<0.000030 84.4		40-130	mg/L %	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825 R3758825
Surrogate: Aceriaphitierie d 10 Surrogate: Acridine d9	98.3		40-130	%	21-JUN-17 21-JUN-17	29-JUN-17 29-JUN-17	R3758825
Surrogate: Chrysene d12	61.0		40-130	%	21-JUN-17	29-JUN-17	R3758825
Surrogate: Naphthalene d8	83.8		40-130	%	21-JUN-17	29-JUN-17	R3758825
Surrogate: Phenanthrene d10	83.1		40-130	%	21-JUN-17	29-JUN-17	R3758825
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	76.9		1.2	mg/L		21-JUN-17	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		21-JUN-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		21-JUN-17	
Alkalinity, Total (as CaCO3)	00.0		1.0	/I		20 11 14 47	D0754000
Alkalinity, Total (as CaCO3)	63.0		1.0	mg/L		20-JUN-17	R3751986
Ammonia by colour Ammonia, Total (as N)	0.070		0.010	mg/L		27-JUN-17	R3757609
Biochemical Oxygen Demand (BOD)	0.070		0.010	iiig/L		21-00IN-11	13737009
Biochemical Oxygen Demand	8.2		2.0	mg/L		21-JUN-17	R3756636
Carbonaceous BOD	J			<i>y</i> –			
BOD Carbonaceous	6.6		2.0	mg/L		21-JUN-17	R3756636
Chloride in Water by IC							
Chloride (CI)	66.9		0.50	mg/L		21-JUN-17	R3756435
Conductivity							
Conductivity	333		1.0	umhos/cm		20-JUN-17	R3751986
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	<10		10	MPN/100mL		20-JUN-17	R3752033
Hardness Calculated	00.0	што	0.05	m c /l		26 1111 47	
Hardness (as CaCO3)	99.6	HTC	0.25	mg/L		26-JUN-17	
Mercury Total Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	21-JUN-17	21-JUN-17	R3752879
Nitrate in Water by IC	<0.000000		0.0000000	IIIg/L	21-00IN-11	21-30IN-17	13/320/9
initiate iii water by io							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
LADAFOAS A ADV S							
L1945016-4 ARV-6							
Sampled By: CLIENT on 19-JUN-17 @ 09:35							
Matrix: WATER							
Nitrate in Water by IC Nitrate (as N)	<0.020		0.020	mg/L		21-JUN-17	R3756435
Nitrate+Nitrite Nitrate and Nitrite as N	<0.070		0.070	mg/L		27-JUN-17	
Nitrite in Water by IC Nitrite (as N)	<0.010		0.010	mg/L		21-JUN-17	R3756435
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		23-JUN-17	R3755066
Phenol (4AAP)	\\ 3.0		5.0	mg/L		25 5011 17	13733000
Phenols (4AAP) Phosphorus, Total	0.0141		0.0010	mg/L		06-JUL-17	R3767369
Phosphorus (P)-Total	0.065		0.010	mg/L		22-JUN-17	R3755005
Sulfate in Water by IC Sulfate (SO4)	<0.30		0.30	mg/L		21-JUN-17	R3756435
Total Metals by ICP-MS			_				
Aluminum (Al)-Total	0.0867		0.0050	mg/L	22-JUN-17	22-JUN-17	R3753846
Arsenic (As)-Total	0.00065		0.00020	mg/L	22-JUN-17	22-JUN-17	R3753846
Cadmium (Cd)-Total Calcium (Ca)-Total	<0.000010		0.000010	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Chromium (Cr)-Total	28.7 <0.0010		0.10 0.0010	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846 R3753846
Cobalt (Co)-Total	0.00209		0.0010	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	
Copper (Cu)-Total	0.00209		0.00020	mg/L mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846 R3753846
Iron (Fe)-Total	15.5		0.00020	mg/L	22-JUN-17 22-JUN-17	22-JUN-17 22-JUN-17	R3753846
Lead (Pb)-Total	0.000197		0.00090	mg/L	22-JUN-17	22-JUN-17	R3753846
Magnesium (Mg)-Total	6.76		0.010	mg/L	22-JUN-17	22-JUN-17	R3753846
Manganese (Mn)-Total	2.32		0.030	mg/L	22-JUN-17	23-JUN-17	R3755816
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	22-JUN-17	22-JUN-17	R3753846
Potassium (K)-Total	3.99		0.020	mg/L	22-JUN-17	22-JUN-17	R3753846
Sodium (Na)-Total	23.8		0.030	mg/L	22-JUN-17	22-JUN-17	R3753846
Zinc (Zn)-Total	0.0050		0.0020	mg/L	22-JUN-17	22-JUN-17	R3753846
Total Organic Carbon by Combustion Total Organic Carbon	14.6		0.50	mg/L		25-JUN-17	R3756206
Total Suspended Solids				-			
Total Suspended Solids	36		20	mg/L		26-JUN-17	R3756788
pH pH	6.95		0.10	pH units		20-JUN-17	R3751986
	1					I	

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

Reference Information

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Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

rest wethou Reference	S.		
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.

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.

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Reference Information

Test Method References:

ALS Test Code Matrix Test Description Method Reference**

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-L-MS-WP Water Total Metals by ICP-MS APHA 3030E/EPA 6020A-TL

This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma mass spectrometry (EPA Method 6020A).

NH3-COL-WP Water Ammonia by colour APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

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

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

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

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

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

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

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

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus 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.

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)

L1945016 CONTD....

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Reference Information

Test Method References:

ALS Test Code Matrix Test Description Method Reference**

Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.

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

XYLENES-SUM-CALC-WP

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

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

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

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.

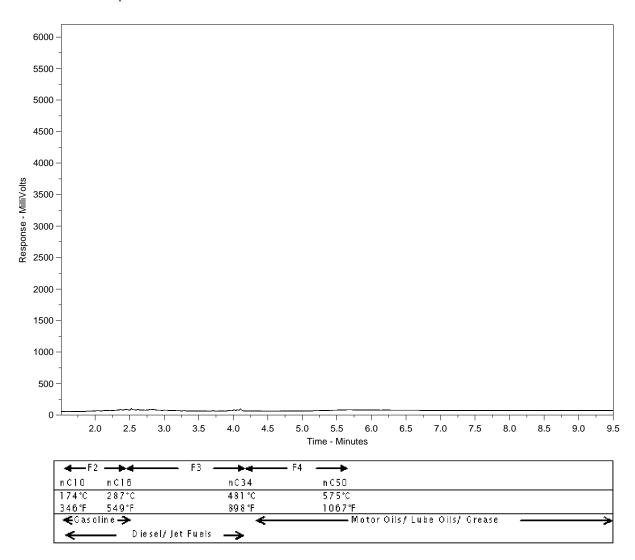
Test results reported relate only to the samples as received by the laboratory.

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.



ALS Sample ID: L1945016-1 Client Sample ID: ARV-2



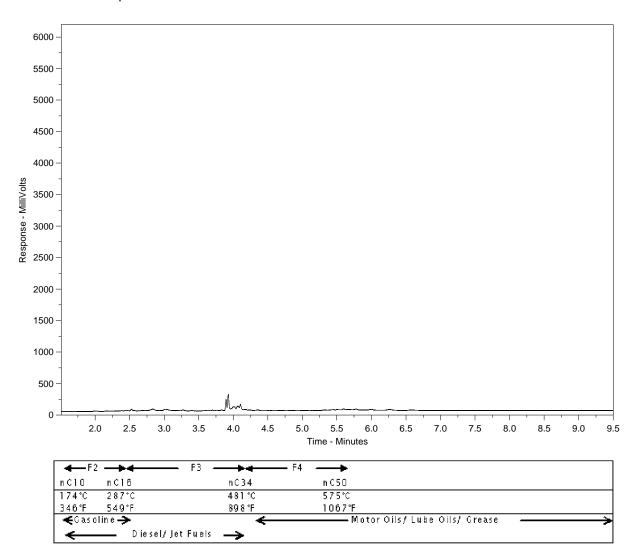
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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.



ALS Sample ID: L1945016-2 Client Sample ID: ARV-4



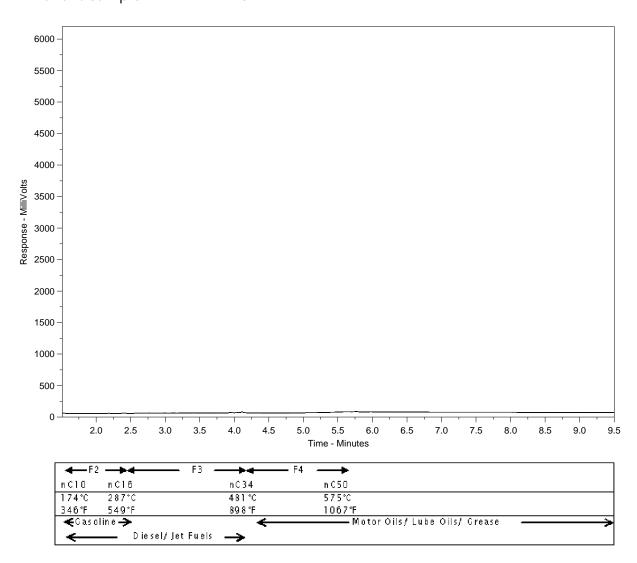
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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.



ALS Sample ID: L1945016-3 Client Sample ID: ARV-5



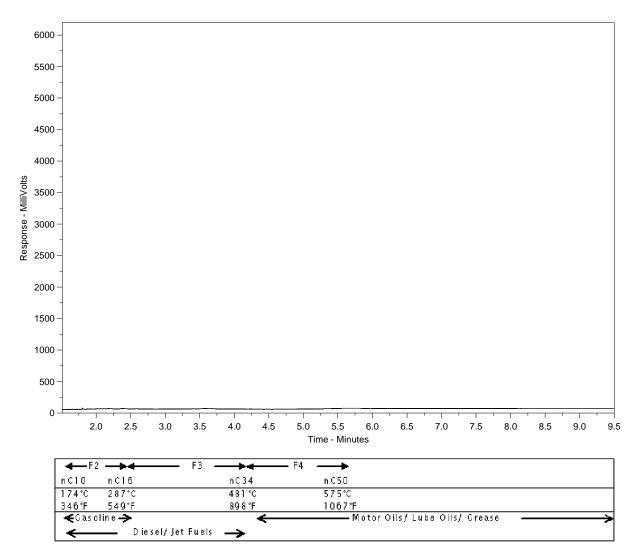
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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.



ALS Sample ID: L1945016-4 Client Sample ID: ARV-6



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.

Environmental

Chain of Custody (COC) / Analytical Request Form

Page _____ of _____

www.alsglobal.com	Canada Toll Free: 1 800) 668 9878		L19450)16-CC	FC				1945	016		
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	Criteria	on Report - provide details bel			E _	Emerger	icy (1-2 busine	ss days if	received by 3pm)				
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TYes TNo Are samples for human drinking water use?							TEMPERATUR	ES ºC ∵∈	514. w. x	FINAL COOLE	R TEMPE	RATURES	C
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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY NA-FM:0326e v09 Front/04 January 2014



Hamlet of Arviat

ATTN: STEVE ENGLAND

PO Box 150

Arviat NU XOC 0E0

Date Received: 14-JUL-17

Report Date: 27-JUL-17 09:09 (MT)

Version: FINAL

Client Phone: 867-857-2841

Certificate of Analysis

Lab Work Order #: L1958854

Project P.O. #: NOT SUBMITTED

Job Reference: HAMLET OF ARVIAT

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



L1958854 CONTD.... PAGE 2 of 13 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958854-1 ARV-2							
Sampled By: CLIENT on 12-JUL-17 @ 08:45							
Matrix: WATER BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
Toluene	<0.0010		0.0010	mg/L		19-JUL-17	R3777882
Ethyl benzene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
o-Xylene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
m+p-Xylenes	<0.00040		0.00040	mg/L		19-JUL-17	R3777882
F1 (C6-C10)	<0.10		0.10	mg/L		19-JUL-17	R3777882
Surrogate: 4-Bromofluorobenzene (SS)	98.0		70-130	%		19-JUL-17	R3777882
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.15		0.10	mg/L	19-JUL-17	22-JUL-17	R3781771
F3 (C16-C34)	0.46		0.25	mg/L	19-JUL-17	22-JUL-17	R3781771
F4 (C34-C50)	<0.25		0.25	mg/L	19-JUL-17	22-JUL-17	R3781771
Surrogate: 2-Bromobenzotrifluoride	117.6		60-140	%	19-JUL-17	22-JUL-17	R3781771
CCME Total Hydrocarbons	0.15			n		00 11 11 4=	
F1-BTEX	<0.10		0.10	mg/L		26-JUL-17	
F2-Naphth	0.15		0.10	mg/L		26-JUL-17	
F3-PAH Total Undraggrhams (C6 CE0)	0.46		0.25	mg/L		26-JUL-17 26-JUL-17	
Total Hydrocarbons (C6-C50)	0.62		0.38	mg/L		26-JUL-17	
Sum of Xylene Isomer Concentrations Xylenes (Total)	<0.00064		0.00064	mg/L		21-JUL-17	
Ayleries (Total)	<0.0004		0.00004	IIIg/L		21-30L-17	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-JUL-17	26-JUL-17	R3782469
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-JUL-17	26-JUL-17	R3782469
Acenaphthene	<0.000020		0.000020	mg/L	25-JUL-17	26-JUL-17	R3782469
Acenaphthylene	0.000026	EMPC	0.000020	mg/L	25-JUL-17	26-JUL-17	R3782469
Anthracene	<0.00010		0.000010	mg/L	25-JUL-17	26-JUL-17	R3782469
Acridine	<0.000020		0.000020	mg/L	25-JUL-17	26-JUL-17	R3782469
Benzo(a)anthracene	<0.000010		0.000010	mg/L	25-JUL-17	26-JUL-17	R3782469
Benzo(a)pyrene	<0.000050		0.0000050	mg/L	25-JUL-17	26-JUL-17	R3782469
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	25-JUL-17	26-JUL-17	R3782469
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	25-JUL-17	26-JUL-17	R3782469
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	25-JUL-17	26-JUL-17	R3782469
Chrysene	<0.000020		0.000020	mg/L	25-JUL-17	26-JUL-17	R3782469
Dibenzo(a,h)anthracene	<0.000050		0.0000050	mg/L	25-JUL-17	26-JUL-17	R3782469
Fluoranthene	<0.000020		0.000020	mg/L	25-JUL-17	26-JUL-17	R3782469
Fluorene	<0.000020		0.000020	mg/L	25-JUL-17	26-JUL-17	R3782469
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	25-JUL-17	26-JUL-17	R3782469
Naphthalene Phenanthrene	<0.000050		0.000050	mg/L	25-JUL-17	26-JUL-17	R3782469
Prenanthrene Pyrene	<0.000050		0.000050	mg/L	25-JUL-17 25-JUL-17	26-JUL-17	R3782469
Quinoline	<0.000010 0.000092	EMPC	0.000010 0.000020	mg/L mg/L	25-JUL-17 25-JUL-17	26-JUL-17 26-JUL-17	R3782469 R3782469
B(a)P Total Potency Equivalent	<0.000092	LIVIII O	0.000020	mg/L	25-JUL-17 25-JUL-17	26-JUL-17 26-JUL-17	R3782469
Surrogate: Acenaphthene d10	82.5		40-130	111g/L %	25-JUL-17 25-JUL-17	26-JUL-17 26-JUL-17	R3782469
Surrogate: Aceriaprilierie d 10 Surrogate: Acridine d9	100.6		40-130	%	25-JUL-17	26-JUL-17	R3782469
Surrogate: Chrysene d12	67.3		40-130	%	25-JUL-17	26-JUL-17	R3782469
Surrogate: Naphthalene d8	84.4		40-130	%	25-JUL-17	26-JUL-17	R3782469
Surrogate: Phenanthrene d10	76.4		40-130	%	25-JUL-17	26-JUL-17	R3782469
Nunavut WW Group 1				· ·			
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	356		1.2	mg/L		19-JUL-17	
Alkalinity, Carbonate							

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

L1958854 CONTD.... PAGE 3 of 13 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958854-1 ARV-2							
Sampled By: CLIENT on 12-JUL-17 @ 08:45							
Matrix: WATER							
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		19-JUL-17	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		19-JUL-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	292		1.0	mg/L		15-JUL-17	R3776864
Ammonia by colour							
Ammonia, Total (as N) Biochemical Oxygen Demand (BOD)	2.85		0.10	mg/L		19-JUL-17	R3778206
Biochemical Oxygen Demand	35.2		6.0	mg/L		15-JUL-17	R3779171
Carbonaceous BOD BOD Carbonaceous	21.2		6.0	mg/L		15-JUL-17	R3779171
Chloride in Water by IC Chloride (Cl)	836		10	mg/L		14-JUL-17	R3775969
Conductivity Conductivity			_				
Fecal coliforms, 1:10 dilution by QT97	3310		1.0	umhos/cm		15-JUL-17	R3776864
Fecal Coliforms Hardness Calculated	<10	PEHR	10	MPN/100mL		14-JUL-17	R3773109
Hardness (as CaCO3)	839	HTC	0.20	mg/L		20-JUL-17	
Mercury Total Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	19-JUL-17	19-JUL-17	R3778219
Nitrate in Water by IC Nitrate (as N)	<0.40	DLM	0.40	mg/L		14-JUL-17	R3775969
Nitrate+Nitrite Nitrate and Nitrite as N	<0.45		0.45	mg/L		18-JUL-17	
Nitrite in Water by IC							
Nitrite (as N) Oil & Grease - Gravimetric	0.27		0.20	mg/L		14-JUL-17	R3775969
Oil and Grease	11.0		5.0	mg/L		24-JUL-17	R3781360
Phenol (4AAP) Phenols (4AAP)	0.0021		0.0010	mg/L		21-JUL-17	R3780437
Phosphorus, Total Phosphorus (P)-Total	0.665		0.050	mg/L		18-JUL-17	R3776714
Sulfate in Water by IC							
Sulfate (SO4)	431		6.0	mg/L		14-JUL-17	R3775969
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	0.0283		0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311
Arsenic (As)-Total	0.0283		0.0030	mg/L	18-JUL-17	18-JUL-17 18-JUL-17	R3777311
Cadmium (Cd)-Total	0.000342		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Calcium (Ca)-Total	181		0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Chromium (Cr)-Total	0.00096		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Cobalt (Co)-Total	0.00110		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Copper (Cu)-Total	0.00573		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311
Iron (Fe)-Total	0.775		0.010	mg/L	18-JUL-17	18-JUL-17	R3777311
Lead (Pb)-Total	0.000650		0.000050	mg/L	18-JUL-17	18-JUL-17	R3777311
Magnesium (Mg)-Total	94.0		0.0050	mg/L	18-JUL-17	18-JUL-17	R3777311
Manganese (Mn)-Total	0.588		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Nickel (Ni)-Total	0.00693		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311
Potassium (K)-Total	78.1		0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Sodium (Na)-Total	572		0.50	mg/L	18-JUL-17	19-JUL-17	R3778394
Zinc (Zn)-Total	0.0265		0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311
Total Organic Carbon by Combustion							

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958854-1 ARV-2							
Sampled By: CLIENT on 12-JUL-17 @ 08:45							
,							
Matrix: WATER							
Total Organic Carbon by Combustion Total Organic Carbon	54.1		2.5	mg/L		20-JUL-17	R3779075
Total Suspended Solids							
Total Suspended Solids	90		10	mg/L		17-JUL-17	R3775869
pH	7.00		0.40			45 1111 47	D0770004
pH	7.63		0.10	pH units		15-JUL-17	R3776864
L1958854-2 ARV-4							
Sampled By: CLIENT on 12-JUL-17 @ 08:30							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS	0.00050		0.00050			40 1111 47	D0777000
Benzene Toluene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
Ethyl benzene	<0.0010 <0.00050		0.0010 0.00050	mg/L mg/L		19-JUL-17 19-JUL-17	R3777882 R3777882
o-Xylene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
m+p-Xylenes	<0.00030		0.00030	mg/L		19-JUL-17	R3777882
F1 (C6-C10)	<0.10		0.00040	mg/L		19-JUL-17	R3777882
Surrogate: 4-Bromofluorobenzene (SS)	100.3		70-130	%		19-JUL-17	R3777882
CCME PHC F2-F4 in Water	100.0		70 100	/0		10 002 17	110777002
F2 (C10-C16)	0.16		0.10	mg/L	19-JUL-17	22-JUL-17	R3781771
F3 (C16-C34)	1.72		0.25	mg/L	19-JUL-17	22-JUL-17	R3781771
F4 (C34-C50)	0.64		0.25	mg/L	19-JUL-17	22-JUL-17	R3781771
Surrogate: 2-Bromobenzotrifluoride	91.0		60-140	%	19-JUL-17	22-JUL-17	R3781771
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		26-JUL-17	
F2-Naphth	0.16		0.10	mg/L		26-JUL-17	
F3-PAH	1.72		0.25	mg/L		26-JUL-17	
Total Hydrocarbons (C6-C50)	2.53		0.38	mg/L		26-JUL-17	
Sum of Xylene Isomer Concentrations				,,		04 !!!! 47	
Xylenes (Total)	<0.00064		0.00064	mg/L		21-JUL-17	
Polyaromatic Hydrocarbons (PAHs) 1-Methyl Naphthalene	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469
2-Methyl Naphthalene	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469
Acenaphthene	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469
Acenaphthylene	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469
Anthracene	<0.00010	DLM	0.00010	mg/L	25-JUL-17	25-JUL-17	R3782469
Acridine	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(a)anthracene	<0.00010	DLM	0.00010	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(a)pyrene	<0.000050	DLM	0.000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(b&j)fluoranthene	<0.00010	DLM	0.00010	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(g,h,i)perylene	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(k)fluoranthene	<0.00010	DLM	0.00010	mg/L	25-JUL-17	25-JUL-17	R3782469
Chrysene	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469
Dibenzo(a,h)anthracene	<0.000050	DLM	0.000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Fluoranthene	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469
Fluorene	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469
Indeno(1,2,3-cd)pyrene	<0.00010	DLM	0.00010	mg/L	25-JUL-17	25-JUL-17	R3782469
Naphthalene	<0.00050	DLM	0.00050	mg/L	25-JUL-17	25-JUL-17	R3782469
Phenanthrene	<0.00050	DLM	0.00050	mg/L	25-JUL-17	25-JUL-17	R3782469
Pyrene	<0.00010	DLM	0.00010	mg/L	25-JUL-17	25-JUL-17	R3782469
Quinoline	<0.00020	DLM	0.00020	mg/L	25-JUL-17	25-JUL-17	R3782469

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

L1958854 CONTD.... PAGE 5 of 13 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958854-2 ARV-4							
Sampled By: CLIENT on 12-JUL-17 @ 08:30							
Matrix: WATER							
Polyaromatic Hydrocarbons (PAHs) B(a)P Total Potency Equivalent	<0.000072		0.000072	mg/L	25-JUL-17	25-JUL-17	R3782469
Surrogate: Acenaphthene d10	53.8		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Acridine d9	57.9		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Chrysene d12	52.6		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Naphthalene d8	48.6		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Phenanthrene d10	49.6		40-130	%	25-JUL-17	25-JUL-17	R3782469
Nunavut WW Group 1 Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	354		1.2	mg/L		19-JUL-17	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		19-JUL-17	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		19-JUL-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	290		1.0	mg/L		15-JUL-17	R3776864
Ammonia by colour							
Ammonia, Total (as N) Biochemical Oxygen Demand (BOD)	27.9		1.0	mg/L		19-JUL-17	R3778206
Biochemical Oxygen Demand Carbonaceous BOD	215		50	mg/L		15-JUL-17	R3779171
BOD Carbonaceous	154		50	mg/L		15-JUL-17	R3779171
Chloride in Water by IC Chloride (CI)	167		1.0	mg/L		14-JUL-17	R3775969
Conductivity Conductivity	1090		1.0	umhos/cm		15-JUL-17	R3776864
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	2050	PEHR	10	MPN/100mL		14-JUL-17	R3773109
Hardness Calculated Hardness (as CaCO3)	117	нтс	1.3	mg/L		19-JUL-17	
Mercury Total Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	19-JUL-17	19-JUL-17	R3778219
Nitrate in Water by IC Nitrate (as N)	<0.040	DLM	0.040	mg/L		14-JUL-17	R3775969
Nitrate+Nitrite		BEIVI					13773909
Nitrate and Nitrite as N Nitrite in Water by IC	<0.070		0.070	mg/L		18-JUL-17	
Nitrite (as N) Oil & Grease - Gravimetric	<0.020	DLM	0.020	mg/L		14-JUL-17	R3775969
Oil and Grease Phenol (4AAP)	<5.0		5.0	mg/L		24-JUL-17	R3781360
Phenols (4AAP)	0.0022		0.0010	mg/L		21-JUL-17	R3780437
Phosphorus, Total Phosphorus (P)-Total	6.88		0.25	mg/L		18-JUL-17	R3776714
Sulfate in Water by IC Sulfate (SO4)	3.87		0.60	mg/L		14-JUL-17	R3775969
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	1.26	DLM	0.030	mg/L	18-JUL-17	18-JUL-17	R3777311
Arsenic (As)-Total	0.0101	DLM	0.0010	mg/L	18-JUL-17	18-JUL-17	R3777311
Cadmium (Cd)-Total	0.000266	DLM	0.000050	mg/L	18-JUL-17	18-JUL-17	R3777311
Calcium (Ca)-Total	22.1	DLM	0.50	mg/L	18-JUL-17	18-JUL-17	R3777311
Chromium (Cr)-Total	0.0047	DLM DLM	0.0010	mg/L	18-JUL-17	18-JUL-17	R3777311
Cobalt (Co)-Total	0.0047	DLIVI	0.0010	mg/L	18-JUL-17	18-JUL-17	R3777311

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958854-2 ARV-4							
Sampled By: CLIENT on 12-JUL-17 @ 08:30							
Matrix: WATER							
Total Metals in Water by CRC ICPMS Copper (Cu)-Total	0.103	DLM	0.0050	mg/L	18-JUL-17	18-JUL-17	R3777311
Iron (Fe)-Total	19.6	DLM	0.000	mg/L	18-JUL-17	18-JUL-17	R3777311
Lead (Pb)-Total	0.00571	DLM	0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311
Magnesium (Mg)-Total	15.0	DLM	0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Manganese (Mn)-Total	0.731	DLM	0.0010	mg/L	18-JUL-17	18-JUL-17	R3777311
Nickel (Ni)-Total	0.0115	DLM	0.0050	mg/L	18-JUL-17	18-JUL-17	R3777311
Potassium (K)-Total	23.9	DLM	0.50	mg/L	18-JUL-17	18-JUL-17	R3777311
Sodium (Na)-Total	116	DLM	0.50	mg/L	18-JUL-17	18-JUL-17	R3777311
Zinc (Zn)-Total	0.061	DLM	0.030	mg/L	18-JUL-17	18-JUL-17	R3777311
Total Organic Carbon by Combustion Total Organic Carbon	48.5		2.5	mg/L		20-JUL-17	R3779075
Total Suspended Solids Total Suspended Solids	1670		50	mg/L		17-JUL-17	R3775869
pH	1070		00	9, _		552 17	1.0.70000
рН	6.76		0.10	pH units		15-JUL-17	R3776864
L1958854-3 ARV-5	-		-	•			
Sampled By: CLIENT on 12-JUL-17 @ 09:00							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
Toluene	<0.0010		0.0010	mg/L		19-JUL-17	R3777882
Ethyl benzene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
o-Xylene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
m+p-Xylenes	<0.00040		0.00040	mg/L		19-JUL-17	R3777882
F1 (C6-C10)	<0.10		0.10	mg/L		19-JUL-17	R3777882
Surrogate: 4-Bromofluorobenzene (SS)	108.0		70-130	%		19-JUL-17	R3777882
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	19-JUL-17	22-JUL-17	R3781771
F3 (C16-C34)	<0.25		0.25	mg/L	19-JUL-17	22-JUL-17	R3781771
F4 (C34-C50)	<0.25		0.25	mg/L	19-JUL-17	22-JUL-17	R3781771
Surrogate: 2-Bromobenzotrifluoride	82.7		60-140	%	19-JUL-17	22-JUL-17	R3781771
CCME Total Hydrocarbons F1-BTEX	-0.10		0.10	ma/l		26-JUL-17	
F1-B1EA F2-Naphth	<0.10 <0.10		0.10 0.10	mg/L mg/L		26-JUL-17 26-JUL-17	
F3-PAH	<0.10		0.10	mg/L		26-JUL-17	
Total Hydrocarbons (C6-C50)	<0.38		0.23	mg/L		26-JUL-17	
Sum of Xylene Isomer Concentrations	٦٥.٥٥		5.55	9, _			
Xylenes (Total)	<0.00064		0.00064	mg/L		21-JUL-17	
Polyaromatic Hydrocarbons (PAHs)	0.00000		0.00000		05 11 11 4-	05 11 11 4-	Dozos (SS
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
2-Methyl Naphthalene Acenaphthene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Acenaphthylene	<0.000020		0.000020	mg/L	25-JUL-17 25-JUL-17	25-JUL-17 25-JUL-17	R3782469
Anthracene	<0.000020 <0.000010		0.000020 0.000010	mg/L mg/L	25-JUL-17 25-JUL-17	25-JUL-17 25-JUL-17	R3782469 R3782469
Aridine	<0.000010		0.000010	mg/L	25-JUL-17 25-JUL-17	25-JUL-17 25-JUL-17	R3782469 R3782469
Benzo(a)anthracene	<0.000020		0.000020	mg/L	25-JUL-17 25-JUL-17	25-JUL-17 25-JUL-17	R3782469
Benzo(a)pyrene	<0.000010		0.000010	mg/L	25-JUL-17 25-JUL-17	25-JUL-17 25-JUL-17	R3782469
Benzo(b&j)fluoranthene	<0.000010		0.0000030	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(g,h,i)perylene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
W/ /// - 7	10.000020		3.000020	···· <i>y</i> =			1.0.02100

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958854-3 ARV-5							
Sampled By: CLIENT on 12-JUL-17 @ 09:00							
Matrix: WATER							
Polyaromatic Hydrocarbons (PAHs)							
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Chrysene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Dibenzo(a,h)anthracene	<0.000050		0.0000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Fluoranthene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Fluorene Indeno(1,2,3-cd)pyrene	<0.000020 <0.000010		0.000020	mg/L mg/L	25-JUL-17 25-JUL-17	25-JUL-17 25-JUL-17	R3782469 R3782469
Naphthalene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17 25-JUL-17	R3782469
Phenanthrene	<0.000050		0.000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Pyrene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Quinoline	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	25-JUL-17	25-JUL-17	R3782469
Surrogate: Acenaphthene d10	85.0		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Acridine d9	95.4		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Chrysene d12	78.0		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Naphthalene d8 Surrogate: Phenanthrene d10	81.2		40-130	% %	25-JUL-17 25-JUL-17	25-JUL-17	R3782469
Nunavut WW Group 1	81.1		40-130	70	20-JUL-1/	25-JUL-17	R3782469
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	135		1.2	mg/L		19-JUL-17	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		19-JUL-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		19-JUL-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	110		1.0	mg/L		15-JUL-17	R3776864
Ammonia by colour	110		1.0	IIIg/L		13-30L-17	K3770004
Ammonia, Total (as N)	0.025		0.010	mg/L		19-JUL-17	R3778206
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		15-JUL-17	R3779171
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		15-JUL-17	R3779171
Chloride in Water by IC Chloride (CI)	1300		10	mg/L		14-JUL-17	R3775969
Conductivity	1300		10	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1- 00L-11	1.0110303
Conductivity	3890		1.0	umhos/cm		15-JUL-17	R3776864
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	<10	PEHR	10	MPN/100mL		14-JUL-17	R3773109
Hardness Calculated						00 !! !! :=	
Hardness (as CaCO3)	744	HTC	0.20	mg/L		20-JUL-17	
Mercury Total Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	19-JUL-17	19-JUL-17	R3778219
Nitrate in Water by IC	<u> </u>		0.0000000	iiig/L	10 00L-11	10-00L-17	13770218
Nitrate (as N)	<0.40	DLM	0.40	mg/L		14-JUL-17	R3775969
Nitrate+Nitrite	_						
Nitrate and Nitrite as N	<0.45		0.45	mg/L		18-JUL-17	
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		14-JUL-17	R3775969
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		24-JUL-17	D3781360
Phenol (4AAP)	< ວ.ບ		5.0	IIIg/L		24-JUL-11	R3781360
Phenols (4AAP)	<0.0010		0.0010	mg/L		21-JUL-17	R3780437
Phosphorus, Total							

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

L1958854 CONTD.... PAGE 8 of 13 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958854-3 ARV-5							
Sampled By: CLIENT on 12-JUL-17 @ 09:00							
Matrix: WATER							
Phosphorus, Total							
Phosphorus (P)-Total	0.043		0.010	mg/L		18-JUL-17	R3776714
Sulfate in Water by IC							
Sulfate (SO4)	119		6.0	mg/L		14-JUL-17	R3775969
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0220		0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311
Arsenic (As)-Total Cadmium (Cd)-Total	0.00050 <0.000050		0.00010 .0000050	mg/L mg/L	18-JUL-17 18-JUL-17	18-JUL-17 18-JUL-17	R3777311 R3777311
Calcium (Ca)-Total	79.7	0.	0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Chromium (Cr)-Total	0.00022		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Cobalt (Co)-Total	0.00021	1 1	0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Copper (Cu)-Total	0.00058		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311
Iron (Fe)-Total	1.17		0.010	mg/L	18-JUL-17	18-JUL-17	R3777311
Lead (Pb)-Total	<0.000050	1	0.000050	mg/L	18-JUL-17	18-JUL-17	R3777311
Magnesium (Mg)-Total	132		0.0050	mg/L	18-JUL-17	18-JUL-17	R3777311
Manganese (Mn)-Total	0.137		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311
Potassium (K)-Total Sodium (Na)-Total	23.6 765		0.050 0.50	mg/L mg/L	18-JUL-17 18-JUL-17	18-JUL-17 19-JUL-17	R3777311 R3778394
Zinc (Zn)-Total	0.0031		0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311
Total Organic Carbon by Combustion	0.0031		0.0030	1119/ =	10 002 17	10 002 17	10777311
Total Organic Carbon	9.84		0.50	mg/L		20-JUL-17	R3779075
Total Suspended Solids							
Total Suspended Solids	31.0		5.0	mg/L		17-JUL-17	R3775869
pH							
pH	8.05		0.10	pH units		15-JUL-17	R3776864
L1958854-4 ARV-6							
Sampled By: CLIENT on 12-JUL-17 @ 09:10							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS Benzene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
Toluene	<0.0010	1 1	0.0010	mg/L		19-JUL-17	R3777882
Ethyl benzene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
o-Xylene	<0.00050		0.00050	mg/L		19-JUL-17	R3777882
m+p-Xylenes	<0.00040		0.00040	mg/L		19-JUL-17	R3777882
F1 (C6-C10)	<0.10		0.10	mg/L		19-JUL-17	R3777882
Surrogate: 4-Bromofluorobenzene (SS)	100.9		70-130	%		19-JUL-17	R3777882
CCME PHC F2-F4 in Water F2 (C10-C16)	0.17		0.10	mg/L	19-JUL-17	22-JUL-17	R3781771
F3 (C16-C34)	1.25		0.10	mg/L	19-JUL-17 19-JUL-17	22-JUL-17 22-JUL-17	R3781771 R3781771
F4 (C34-C50)	<0.25		0.25	mg/L	19-JUL-17	22-JUL-17 22-JUL-17	R3781771
Surrogate: 2-Bromobenzotrifluoride	86.3		60-140	g/ = %	19-JUL-17	22-JUL-17	R3781771
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		26-JUL-17	
F2-Naphth	0.17		0.10	mg/L		26-JUL-17	
F3-PAH	1.25		0.25	mg/L		26-JUL-17	
Total Hydrocarbons (C6-C50)	1.41		0.38	mg/L		26-JUL-17	
Sum of Xylene Isomer Concentrations Xylenes (Total)	<0.00064		0.00064	mg/L		21-JUL-17	
Polyaromatic Hydrocarbons (PAHs)							

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958854-4 ARV-6							
Sampled By: CLIENT on 12-JUL-17 @ 09:10							
Matrix: WATER							
Polyaromatic Hydrocarbons (PAHs) 1-Methyl Naphthalene	0.000084		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
2-Methyl Naphthalene	0.000069		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Acenaphthene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Acenaphthylene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Anthracene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Acridine	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(a)anthracene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(k)fluoranthene Chrysene	<0.000010 <0.000020		0.000010 0.000020	mg/L mg/L	25-JUL-17 25-JUL-17	25-JUL-17 25-JUL-17	R3782469 R3782469
Dibenzo(a,h)anthracene	<0.000020		0.000020	mg/L	25-JUL-17 25-JUL-17	25-JUL-17 25-JUL-17	R3782469 R3782469
Fluoranthene	<0.000020		0.0000030	mg/L	25-JUL-17 25-JUL-17	25-JUL-17 25-JUL-17	R3782469
Fluorene	0.000035		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Indeno(1,2,3-cd)pyrene	<0.000035		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Naphthalene	0.000077	EMPC	0.000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Phenanthrene	<0.00050		0.000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Pyrene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Quinoline	0.000087	EMPC	0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	25-JUL-17	25-JUL-17	R3782469
Surrogate: Acenaphthene d10	81.3		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Acridine d9	93.4		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Chrysene d12	80.3		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Naphthalene d8	87.0		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Phenanthrene d10	78.4		40-130	%	25-JUL-17	25-JUL-17	R3782469
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	94.6		1.2	mg/L		19-JUL-17	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		19-JUL-17	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		19-JUL-17	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	77.5		1.0	mg/L		15-JUL-17	R3776864
Ammonia by colour	0.354		0.040	ma/l		10 11 11 17	D2770206
Ammonia, Total (as N) Biochemical Oxygen Demand (BOD)	0.251		0.010	mg/L		19-JUL-17	R3778206
Biochemical Oxygen Demand	2.1		2.0	mg/L		15-JUL-17	R3779171
Carbonaceous BOD	-2.0		2.0	ma/l		15 1111 47	D2770474
BOD Carbonaceous	<2.0		2.0	mg/L		15-JUL-17	R3779171
Chloride in Water by IC Chloride (CI)	196		0.50	mg/L		14-JUL-17	R3775969
Conductivity Conductivity	737		1.0	umhos/cm		15-JUL-17	R3776864
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	<10	PEHR	10	MPN/100mL		14-JUL-17	R3773109
Hardness Calculated							13//3/09
Hardness (as CaCO3)	209	HTC	0.20	mg/L		20-JUL-17	
Mercury Total Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	19-JUL-17	19-JUL-17	R3778219
Nitrate in Water by IC							

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958854-4 ARV-6							
Sampled By: CLIENT on 12-JUL-17 @ 09:10							
Matrix: WATER							
Nitrate in Water by IC Nitrate (as N)	<0.020		0.020	mg/L		14-JUL-17	R3775969
Nitrate+Nitrite Nitrate and Nitrite as N	<0.070		0.070	mg/L		18-JUL-17	
Nitrite in Water by IC Nitrite (as N)	<0.010		0.010	mg/L		14-JUL-17	R3775969
Oil & Grease - Gravimetric Oil and Grease	9.5		5.0	mg/L		24-JUL-17	R3781360
Phenol (4AAP) Phenols (4AAP)						21-JUL-17	
Phosphorus, Total	0.0018		0.0010	mg/L			R3780437
Phosphorus (P)-Total Sulfate in Water by IC	0.082		0.010	mg/L		18-JUL-17	R3776714
Sulfate (SO4)	0.81		0.30	mg/L		14-JUL-17	R3775969
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.245		0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311
Arsenic (As)-Total	0.00102		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Cadmium (Cd)-Total	0.0000054		0.0000050	mg/L	18-JUL-17	18-JUL-17	R3777311
Calcium (Ca)-Total	56.9		0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Chromium (Cr)-Total Cobalt (Co)-Total	0.00130		0.00010	mg/L	18-JUL-17 18-JUL-17	18-JUL-17 18-JUL-17	R3777311
Copper (Cu)-Total	0.00201 0.00142		0.00010 0.00050	mg/L	18-JUL-17 18-JUL-17	18-JUL-17 18-JUL-17	R3777311 R3777311
Iron (Fe)-Total	24.7		0.00050	mg/L mg/L	18-JUL-17	18-JUL-17	R3777311
Lead (Pb)-Total	0.000352		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311
Magnesium (Mg)-Total	16.1		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311
Manganese (Mn)-Total	2.78		0.0030	mg/L	18-JUL-17	19-JUL-17	R3778394
Nickel (Ni)-Total	0.00126		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311
Potassium (K)-Total	5.36		0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Sodium (Na)-Total	82.7		0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Zinc (Zn)-Total	0.0075		0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311
Total Organic Carbon by Combustion Total Organic Carbon	11.2		0.50	mg/L		20-JUL-17	R3779075
Total Suspended Solids Total Suspended Solids	41.0		5.0	mg/L		17-JUL-17	R3775869
pH			0.0	··· <i>y</i> =			
pH	6.64		0.10	pH units		15-JUL-17	R3776864

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

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Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.

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

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.

HG-T-CVAF-WP

Reference Information

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Test Method References:

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

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.

Fecal coliforms, 1:10 dilution by QT97 Water 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.

EPA245.7 V2.0

Mercury Total

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 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 Nitrate in Water by IC Water 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.

Water

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

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

PAH, PANH-WP 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 **APHA 4500H** Water

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.

HAMLET OF ARVIAT L1958854 CONTD....

Reference Information

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Test Method References:

ALS Test Code Matrix Method Reference** **Test Description** 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. XYLENES-SUM-CALC-Sum of Xylene Isomer Concentrations CALCULATED RESULT WP Total xylenes represents the sum of o-xylene and m&p-xylene.

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

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

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.

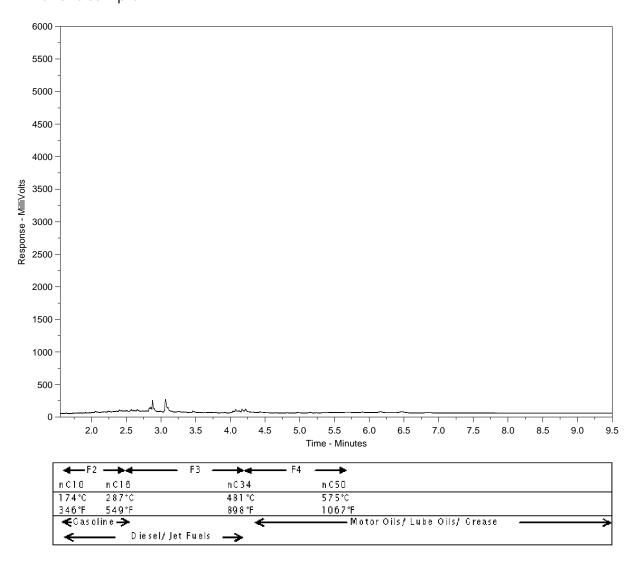
Test results reported relate only to the samples as received by the laboratory.

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.



ALS Sample ID: L1958854-1 Client Sample ID: ARV-2



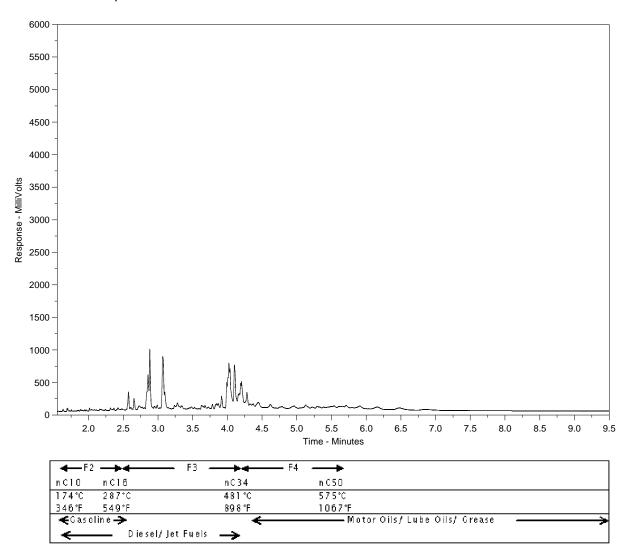
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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.



ALS Sample ID: L1958854-2 Client Sample ID: ARV-4



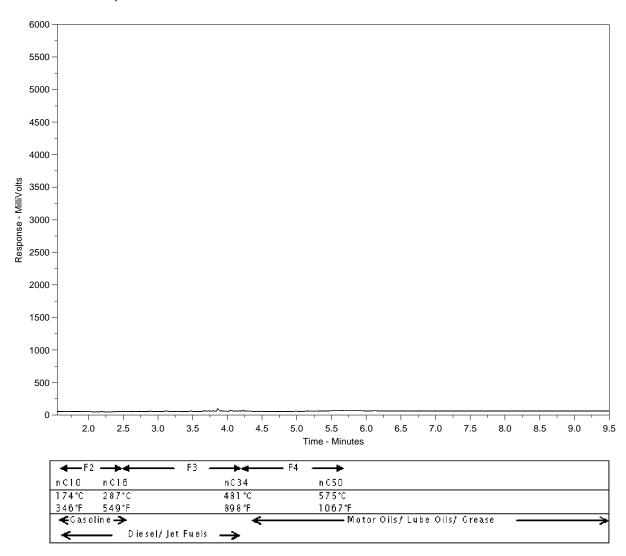
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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.



ALS Sample ID: L1958854-3 Client Sample ID: ARV-5



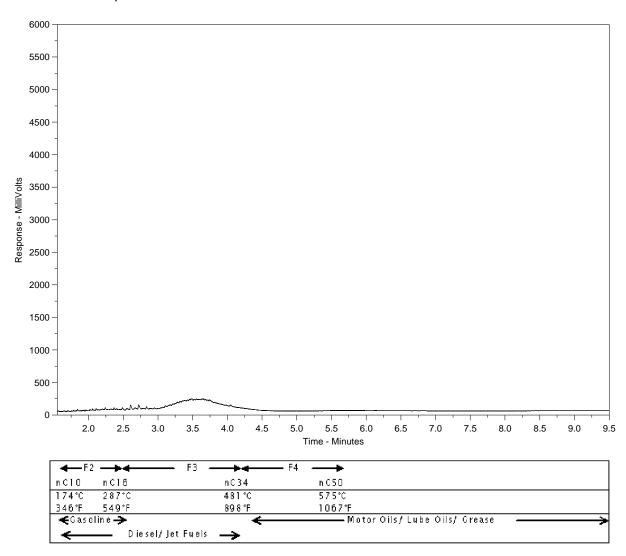
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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.



ALS Sample ID: L1958854-4 Client Sample ID: ARV-6



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.

ALS Environmental

Chain of Custody (COC) / Analytical Request Form

L1958854-COFC

 $\mathsf{coc}\,\mathsf{Number};\ 14-503443$

Page /_ of ____

Canada Toll Free: 1 800 668 9878

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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION		WHIT	E - LABORATORY	COPY YELLON	N - CLIEN	NT COI	-γ		-		NA-F	FM-0325e v09 Fr	ont/04 Januar	y 2014		

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



Hamlet of Arviat

ATTN: STEVE ENGLAND

PO Box 150

Arviat NU XOC 0E0

Date Received: 15-AUG-17

Report Date: 28-AUG-17 09:20 (MT)

Version: FINAL

Client Phone: 867-857-2841

Certificate of Analysis

Lab Work Order #: L1974918
Project P.O. #: NOT SUBMITTED

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

Whe

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
L1974918-1 ARV-2							
Sampled By: CLIENT on 10-AUG-17 @ 09:25							
Matrix:							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		18-AUG-17	R3806443
Toluene	<0.0010		0.0010	mg/L		18-AUG-17	R3806443
Ethyl benzene	< 0.00050		0.00050	mg/L		18-AUG-17	R3806443
o-Xylene	< 0.00050		0.00050	mg/L		18-AUG-17	R3806443
m+p-Xylenes	<0.00040		0.00040	mg/L		18-AUG-17	R3806443
F1 (C6-C10)	<0.10		0.10	mg/L		18-AUG-17	R3806443
Surrogate: 4-Bromofluorobenzene (SS)	97.0		70-130	%		18-AUG-17	R3806443
CCME PHC F2-F4 in Water				"	40 4110 47	40 4110 47	
F2 (C10-C16) F3 (C16-C34)	0.15		0.10	mg/L	16-AUG-17	18-AUG-17	R3804002
F4 (C34-C50)	0.39		0.25	mg/L	16-AUG-17 16-AUG-17	18-AUG-17 18-AUG-17	R3804002
Surrogate: 2-Bromobenzotrifluoride	<0.25 122.1		0.25 60-140	mg/L %	16-AUG-17 16-AUG-17	18-AUG-17 18-AUG-17	R3804002 R3804002
CCME Total Hydrocarbons	122.1		00-140	/0	10-700-11	10-700-11	13004002
F1-BTEX	<0.10		0.10	mg/L		28-AUG-17	
F2-Naphth	0.15		0.10	mg/L		28-AUG-17	
F3-PAH	0.39		0.25	mg/L		28-AUG-17	
Total Hydrocarbons (C6-C50)	0.54		0.38	mg/L		28-AUG-17	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		22-AUG-17	
Delivere messie Hudro conhama (DAHa)							
Polyaromatic Hydrocarbons (PAHs) 1-Methyl Naphthalene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
2-Methyl Naphthalene	<0.000020	DLM	0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Acenaphthene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Acenaphthylene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Anthracene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Acridine	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(a)anthracene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(a)pyrene	<0.000050		0.0000050	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Chrysene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Dibenzo(a,h)anthracene Fluoranthene	<0.0000050		0.0000050	mg/L	17-AUG-17 17-AUG-17	22-AUG-17	R3807592
Fluorene	<0.000020 <0.000020		0.000020 0.000020	mg/L mg/L	17-AUG-17	22-AUG-17 22-AUG-17	R3807592 R3807592
Indeno(1,2,3-cd)pyrene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17 22-AUG-17	R3807592
Naphthalene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Phenanthrene	<0.000050		0.000050	mg/L	17-AUG-17	22-AUG-17	R3807592
Pyrene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Quinoline	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	17-AUG-17	22-AUG-17	R3807592
Surrogate: Acenaphthene d10	80.3		40-130	%	17-AUG-17	22-AUG-17	R3807592
Surrogate: Acridine d9	105.7		40-130	%	17-AUG-17	22-AUG-17	R3807592
Surrogate: Chrysene d12	90.2		40-130	%	17-AUG-17	22-AUG-17	R3807592
Surrogate: Naphthalene d8	79.7		40-130	%	17-AUG-17	22-AUG-17	R3807592
Surrogate: Phenanthrene d10	78.8		40-130	%	17-AUG-17	22-AUG-17	R3807592
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	366		1.2	mg/L		16-AUG-17	
Alkalinity, Carbonate	330		1.2	∌, ⊑		.57.55 17	
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^{*} Refer to Referenced Information for Qualifiers (if any) and Methodology.

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
14074040 4 ADV 0							
L1974918-1 ARV-2							
Sampled By: CLIENT on 10-AUG-17 @ 09:25							
Matrix:							
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	ma/l		16-AUG-17	
Alkalinity, Hydroxide	<0.00		0.60	mg/L		10-A0G-17	
Hydroxide (OH)	<0.34		0.34	mg/L		16-AUG-17	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	300		1.0	mg/L		15-AUG-17	R3801408
Ammonia by colour							
Ammonia, Total (as N)	2.75		0.20	mg/L		24-AUG-17	R3808778
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	38		20	mg/L		16-AUG-17	R3804913
Carbonaceous BOD	36		20	IIIg/L		10-200-17	K3604913
BOD Carbonaceous	29.5		6.0	mg/L		16-AUG-17	R3804913
Chloride in Water by IC							
Chloride (CI)	869		10	mg/L		15-AUG-17	R3801595
Conductivity	0500		4.0			4E ALIO 47	D0004.400
Conductivity Fecal coliforms, 1:10 dilution by QT97	3500		1.0	umhos/cm		15-AUG-17	R3801408
Fecal Coliforms, 1:10 dilution by Q197 Fecal Coliforms	130		10	MPN/100mL		15-AUG-17	R3801179
Hardness Calculated							
Hardness (as CaCO3)	1010	HTC	0.20	mg/L		26-AUG-17	
Mercury Total							
Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	17-AUG-17	22-AUG-17	R3807514
Nitrate in Water by IC Nitrate (as N)	<0.40	DLM	0.40	mg/L		15-AUG-17	R3801595
Nitrate+Nitrite	<0.40	BEIVI	0.40	IIIg/L		13-400-17	K3601393
Nitrate and Nitrite as N	<0.45		0.45	mg/L		16-AUG-17	
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		15-AUG-17	R3801595
Oil & Grease - Gravimetric Oil and Grease	<5.0		50			21-AUG-17	D2004044
Phenol (4AAP)	<5.0		5.0	mg/L		21-AUG-17	R3804941
Phenols (4AAP)	0.0016		0.0010	mg/L		21-AUG-17	R3805171
Phosphorus, Total							
Phosphorus (P)-Total	0.694		0.010	mg/L		18-AUG-17	R3803232
Sulfate in Water by IC							
Sulfate (SO4)	565		6.0	mg/L		15-AUG-17	R3801595
Total Metals in Water by CRC ICPMS Aluminum (AI)-Total	0.0203		0.0030	mg/L	17-AUG-17	24-AUG-17	R3812221
Arsenic (As)-Total	0.00753		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Cadmium (Cd)-Total	0.0000104		0.0000050	mg/L	17-AUG-17	24-AUG-17	R3812221
Calcium (Ca)-Total	238		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Chromium (Cr)-Total	0.00093		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Cobalt (Co)-Total	0.00095		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Copper (Cu)-Total Iron (Fe)-Total	0.00352		0.00050	mg/L	17-AUG-17	24-AUG-17	R3812221
Lead (Pb)-Total	0.596 0.000332		0.010 0.000050	mg/L mg/L	17-AUG-17 17-AUG-17	24-AUG-17 24-AUG-17	R3812221 R3812221
Magnesium (Mg)-Total	100		0.0050	mg/L	17-AUG-17	24-AUG-17 24-AUG-17	R3812221
Manganese (Mn)-Total	0.496		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Nickel (Ni)-Total	0.00728		0.00050	mg/L	17-AUG-17	24-AUG-17	R3812221
Potassium (K)-Total	78.5		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Sodium (Na)-Total	567		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Zinc (Zn)-Total	0.0129		0.0030	mg/L	17-AUG-17	24-AUG-17	R3812221
Total Organic Carbon by Combustion							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1974918-1 ARV-2							
Sampled By: CLIENT on 10-AUG-17 @ 09:25							
Matrix:							
Total Organic Carbon by Combustion							
Total Organic Carbon	46.3		5.0	mg/L		15-AUG-17	R3801141
Total Suspended Solids				,,			
Total Suspended Solids	68		20	mg/L		16-AUG-17	R3802487
pH	7.40		0.40			45 4110 47	D0004400
pH	7.40		0.10	pH units		15-AUG-17	R3801408
L1974918-2 ARV-4							
Sampled By: CLIENT on 10-AUG-17 @ 09:25							
Matrix:							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		18-AUG-17	R3806443
Toluene	0.0187		0.0010	mg/L		18-AUG-17	R3806443
Ethyl benzene	<0.00050		0.00050	mg/L		18-AUG-17	R3806443
o-Xylene	<0.00050		0.00050	mg/L		18-AUG-17	R3806443
m+p-Xylenes	<0.00040		0.00040	mg/L		18-AUG-17	R3806443
F1 (C6-C10)	<0.10		0.10	mg/L		18-AUG-17	R3806443
Surrogate: 4-Bromofluorobenzene (SS)	96.0		70-130	%		18-AUG-17	R3806443
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.16		0.10	mg/L	16-AUG-17	18-AUG-17	R3804002
F3 (C16-C34)	2.85		0.25	mg/L	16-AUG-17	18-AUG-17	R3804002
F4 (C34-C50)	0.92		0.25	mg/L	16-AUG-17	18-AUG-17	R3804002
Surrogate: 2-Bromobenzotrifluoride	110.8		60-140	%	16-AUG-17	18-AUG-17	R3804002
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		28-AUG-17	
F2-Naphth	0.16		0.10	mg/L		28-AUG-17	
F3-PAH	2.85		0.25	mg/L		28-AUG-17	
Total Hydrocarbons (C6-C50)	3.93		0.38	mg/L		28-AUG-17	
Sum of Xylene Isomer Concentrations						<u>-</u>	
Xylenes (Total)	<0.00064		0.00064	mg/L		22-AUG-17	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
2-Methyl Naphthalene	<0.000050	DLM	0.000050	mg/L	17-AUG-17	22-AUG-17	R3807592
Acenaphthene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Acenaphthylene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Anthracene	<0.00010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Acridine	<0.00010	DLM	0.00010	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(a)anthracene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(a)pyrene	<0.000050		0.0000050	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Chrysene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Dibenzo(a,h)anthracene	<0.000050		0.0000050	mg/L	17-AUG-17	22-AUG-17	R3807592
Fluoranthene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Fluorene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Naphthalene	<0.000050		0.000050	mg/L	17-AUG-17	22-AUG-17	R3807592
Phenanthrene	<0.000050		0.000050	mg/L	17-AUG-17	22-AUG-17	R3807592
Pyrene	<0.00020	DLM	0.00020	mg/L	17-AUG-17	22-AUG-17	R3807592
Quinoline	<0.00010	DLM	0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1974918-2 ARV-4							
Sampled By: CLIENT on 10-AUG-17 @ 09:25							
Matrix:							
Polyaromatic Hydrocarbons (PAHs) B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	17-AUG-17	22-AUG-17	R3807592
Surrogate: Acenaphthene d10	80.1		40-130	%	17-AUG-17	22-AUG-17	R3807592
Surrogate: Acridine d9	98.2		40-130	%	17-AUG-17	22-AUG-17	R3807592
Surrogate: Chrysene d12	88.5		40-130	%	17-AUG-17	22-AUG-17	R3807592
Surrogate: Naphthalene d8	75.0		40-130	%	17-AUG-17	22-AUG-17	R3807592
Surrogate: Phenanthrene d10	76.8		40-130	%	17-AUG-17	22-AUG-17	R3807592
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	168		1.2	mg/L		16-AUG-17	
Alkalinity, Carbonate Carbonate (CO3)	13.2		0.60	mg/L		16-AUG-17	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		16-AUG-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	159		1.0	mg/L		15-AUG-17	R3801408
Ammonia by colour Ammonia, Total (as N)	8.68		0.20	mg/L		24-AUG-17	R3808778
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	50		20	mg/L		16-AUG-17	R3804913
Carbonaceous BOD							
BOD Carbonaceous Chloride in Water by IC	43		20	mg/L		16-AUG-17	R3804913
Chloride (CI) Conductivity	146		0.50	mg/L		15-AUG-17	R3801595
Conductivity Fecal coliforms, 1:10 dilution by QT97	761		1.0	umhos/cm		15-AUG-17	R3801408
Fecal Coliforms Hardness Calculated	230		10	MPN/100mL		15-AUG-17	R3801179
Hardness (as CaCO3) Mercury Total	93.7	нтс	0.20	mg/L		26-AUG-17	
Mercury (Hg)-Total	<0.000050		0.000050	mg/L	17-AUG-17	22-AUG-17	R3807514
Nitrate in Water by IC Nitrate (as N)	<0.020		0.020	mg/L		15-AUG-17	R3801595
Nitrate+Nitrite Nitrate and Nitrite as N	0.182		0.070	mg/L		16-AUG-17	
Nitrite in Water by IC Nitrite (as N)	0.182		0.010	mg/L		15-AUG-17	R3801595
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		21-AUG-17	R3804941
Phenol (4AAP) Phenols (4AAP)	<0.010	DLM	0.010	mg/L		18-AUG-17	R3802986
Phosphorus, Total Phosphorus (P)-Total	8.65		0.25	mg/L		18-AUG-17	R3803232
Sulfate in Water by IC Sulfate (SO4)	18.6		0.30	mg/L		15-AUG-17	R3801595
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	0.344		0.0030	mg/L	17-AUG-17	24-AUG-17	R3812221
Arsenic (As)-Total	0.344		0.0030	mg/L	17-AUG-17 17-AUG-17	24-AUG-17 24-AUG-17	R3812221
Cadmium (Cd)-Total	0.0000669		0.00010	mg/L	17-AUG-17	24-AUG-17 24-AUG-17	R3812221
Calcium (Ca)-Total	18.3		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Chromium (Cr)-Total	0.00165		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Cobalt (Co)-Total	0.00219		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1974918-2 ARV-4							
Sampled By: CLIENT on 10-AUG-17 @ 09:25							
Matrix:							
Total Metals in Water by CRC ICPMS Copper (Cu)-Total	0.0438		0.00050	mg/L	17-AUG-17	24-AUG-17	R3812221
Iron (Fe)-Total	4.14		0.0000	mg/L	17-AUG-17	24-AUG-17	R3812221
Lead (Pb)-Total	0.00213		0.000050	mg/L	17-AUG-17	24-AUG-17	R3812221
Magnesium (Mg)-Total	11.6		0.0050	mg/L	17-AUG-17	24-AUG-17	R3812221
Manganese (Mn)-Total	0.331		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Nickel (Ni)-Total	0.00879		0.00050	mg/L	17-AUG-17	24-AUG-17	R3812221
Potassium (K)-Total	37.4		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Sodium (Na)-Total	112		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Zinc (Zn)-Total	0.0397		0.0030	mg/L	17-AUG-17	24-AUG-17	R3812221
Total Organic Carbon by Combustion							
Total Organic Carbon	175		5.0	mg/L		15-AUG-17	R3801141
Total Suspended Solids							
Total Suspended Solids	272		20	mg/L		16-AUG-17	R3802487
pH						45 4110 1=	
рН	8.82		0.10	pH units		15-AUG-17	R3801408
L1974918-3 ARV-5							
Sampled By: CLIENT on 10-AUG-17 @ 09:25							
Matrix:							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		18-AUG-17	R3806443
Toluene	<0.0010		0.0010	mg/L		18-AUG-17	R3806443
Ethyl benzene	<0.00050		0.00050	mg/L		18-AUG-17	R3806443
o-Xylene	<0.00050		0.00050	mg/L		18-AUG-17	R3806443
m+p-Xylenes	<0.00040		0.00040	mg/L		18-AUG-17	R3806443
F1 (C6-C10)	<0.10		0.10	mg/L		18-AUG-17	R3806443
Surrogate: 4-Bromofluorobenzene (SS)	98.0		70-130	%		18-AUG-17	R3806443
CCME PHC F2-F4 in Water F2 (C10-C16)	<0.10		0.10	mg/L	16-AUG-17	18-AUG-17	R3804002
F3 (C16-C34)	<0.10		0.10	mg/L	16-AUG-17	18-AUG-17	R3804002
F4 (C34-C50)	<0.25		0.25	mg/L	16-AUG-17	18-AUG-17	R3804002
Surrogate: 2-Bromobenzotrifluoride	134.8		60-140	%	16-AUG-17	18-AUG-17	R3804002
CCME Total Hydrocarbons	104.0		00 170	70		.07.00 17	1,000,4002
F1-BTEX	<0.10		0.10	mg/L		28-AUG-17	
F2-Naphth	<0.10		0.10	mg/L		28-AUG-17	
F3-PAH	<0.25		0.25	mg/L		28-AUG-17	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		28-AUG-17	
Sum of Xylene Isomer Concentrations				-			
Xylenes (Total)	<0.00064		0.00064	mg/L		22-AUG-17	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
2-Methyl Naphthalene	<0.000050	DLM	0.000050	mg/L	17-AUG-17	22-AUG-17	R3807592
Acenaphthene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Acenaphthylene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Anthracene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Acridine	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(a)anthracene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(a)pyrene	<0.000050		0.0000050	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592

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

L1974918-3 ARV-5 Sampled By: CLIENT on 10-AUG-17 @ 09-25	Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
Sampled By: CLIENT on 10-AUG-17 @ 09-26	L1974918-3 ARV-5							
Matrix Polyaromitic Hydrocarbons (PAHs) Barazol/flutoranthens A0.000010 D.000010 mg/L 17.AUG-17 22.AUG-17 83807592 8380759								
Benzo(lifluoranthene								
Benzo(lifluoranthene	Polyaromatic Hydrocarbons (PAHs)							
Dibenzo(a/h)anthracene		<0.000010		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807592
Fluoranthene	,	<0.000020		0.000020	-	17-AUG-17		R3807592
Flucrene					-			
Indenot(1.2.3-od)pyrene					_			
Naphthalene								
Phenanthrene	, , , , , , , , , , , , , , , , , , , ,							
Pyrinan Quinoline Quinol					_			
Bignary Total Potency Equivalent <.0.000030	Pyrene				_			
Surrogate: Acenaphthene d10	Quinoline	<0.000020		0.000020	mg/L	17-AUG-17	22-AUG-17	R3807592
Surrogate: Acridine d9				0.000030	-			
Surrogate: Chrysene d12	,							
Surrogate: Naphthalene d8 71.4 40-130 % 17-AUG-17 22-AUG-17 R3807/592 R3907/592 R390	_	-						
Surrogate: Phenanthrene d10 78.9 40-130 % 17-AUG-17 22-AUG-17 R3807592								
Nunavut WW Group 1 Alkalinity, Bicarbonate Bicarbonate (HCO3) 135 1.2 mg/L 16-AUG-17 1	,							
Alkalinity, Bicarbonate Bicarbonate Bicarbonate Carbonate	_	70.0		+0-100	"		LL , (00-11	1.0001032
Bicarbonate (HCO3)	-							
Carbonate (CO3)		135		1.2	mg/L		16-AUG-17	
Alkalinity, Hydroxide Hydroxide (OH)								
Hydroxide (OH)	` '	<0.60		0.60	mg/L		16-AUG-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3) Ammonia by colour Ammonia, Total (as N) Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand Carbonaceous BOD BOD Carbonaceous Chloride in Water by IC Chloride in Water by IC Chloride (CI) Conductivity Conductivity Conductivity Conductivity Conductivity Africate in Water by IC Hardness Calculated Hardness CaCO3) Mercury Total Mercury (Hg)-Total Mercury (Hg)-Total Nitrate in Water by IC Nitrate and Nitrite as N Nitrate+Nitrite Nitrate in Water by IC Nitrite (as N) Oli & Grease - Gravimetric Oli and Grease Phenol (4AAP) Phenols (4AAP) Phenols (4AAP) Phenols (4AAP) Page Danad (BOD) 1.0 mg/L 15-AUG-17 R3801408 1.0 mg/L 15-AUG-17 R3801408 1.0 mg/L 15-AUG-17 R3801408 1.0 mg/L 15-AUG-17 R3801408 1.0 mg/L 15-AUG-17 R3801595 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000 0.00000 0.0000 0.0000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.		-0.24		0.24	ma/l		16 ALIC 17	
Alkalinity, Total (as CaCO3)		<0.34		0.34	IIIg/L		10-A0G-17	
Ammonia by colour Ammonia, Total (las N) 0.025 0.010 mg/L 23-AUG-17 R3807456		110		1.0	mg/L		15-AUG-17	R3801408
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand 2.3 2.0 mg/L 16-AUG-17 R3804913		-						
Biochemical Oxygen Demand 2.3 2.0 mg/L 16-AUG-17 R3804913	Ammonia, Total (as N)	0.025		0.010	mg/L		23-AUG-17	R3807456
Carbonaceous BOD BOD Carbonaceous <2.0								
BOD Carbonaceous		2.3		2.0	mg/L		16-AUG-17	R3804913
Chloride in Water by IC Chloride (CI) 868 5.0 mg/L 15-AUG-17 R3801595 Conductivity Conductivity 2790 1.0 umhos/cm 15-AUG-17 R3801408 Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms 60 10 MPN/100mL 15-AUG-17 R3801179 Hardness Calculated Hardness (as CaCO3) 412 HTC 0.20 mg/L 26-AUG-17 R3801179 Mercury Total Mercury (Hg)-Total <0.0000050		-20		2.0	ma/l		16-AUG-17	R3804913
Chloride (Cl)		\2.0		2.0	1119/2		107.00 17	113004313
Conductivity 2790		868		5.0	mg/L		15-AUG-17	R3801595
Fecal coliforms, 1:10 dilution by QT97 60 10 MPN/100mL 15-AUG-17 R3801179 Hardness Calculated Hardness (as CaCO3) 412 HTC 0.20 mg/L 26-AUG-17 26-AUG-17 26-AUG-17 R3807514 Mercury Total 0.0000050 mg/L 17-AUG-17 22-AUG-17 R3807514 R3807514 Nitrate in Water by IC Nitrate Available of the A								
Fecal Coliforms	,	2790		1.0	umhos/cm		15-AUG-17	R3801408
Hardness Calculated Hardness (as CaCO3)		00		40	MDN/400		15 AUG 47	D2004470
Hardness (as CaCO3)		60		10	IVIPIN/TOUML		15-AUG-17	K3801179
Mercury Total Mercury (Hg)-Total <0.0000050		412	нтс	0.20	ma/L		26-AUG-17	
Mercury (Hg)-Total <0.0000050				5.25				
Nitrate (as N) <0.20		<0.0000050		0.0000050	mg/L	17-AUG-17	22-AUG-17	R3807514
Nitrate+Nitrite Nitrate and Nitrite as N <0.22								
Nitrate and Nitrite as N <0.22 0.22 mg/L 16-AUG-17 Nitrite in Water by IC Nitrite (as N) <0.10 DLM 0.10 mg/L 15-AUG-17 R3801595 Oil & Grease - Gravimetric Oil and Grease <5.0 5.0 mg/L 21-AUG-17 R3804941 Phenol (4AAP) <0.0010 0.0010 mg/L 18-AUG-17 R3802986		<0.20	DLM	0.20	mg/L		15-AUG-17	R3801595
Nitrite in Water by IC Nitrite (as N) <0.10		-0.22		0.33	ma/l		16-AUC 17	
Nitrite (as N) <0.10		<0.22		0.22	ilig/L		10-400-17	
Oil & Grease - Gravimetric <5.0	· ·	<0.10	DLM	0.10	mg/L		15-AUG-17	R3801595
Phenol (4AAP) <0.0010	, ,							
Phenols (4AAP)	Oil and Grease	<5.0		5.0	mg/L		21-AUG-17	R3804941
				_				
		<0.0010		0.0010	mg/L		18-AUG-17	R3802986
Phosphorus, Total	Phosphorus, Total							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
1074018 2 AP\/ 5							
L1974918-3 ARV-5							
Sampled By: CLIENT on 10-AUG-17 @ 09:25							
Matrix:							
Phosphorus, Total Phosphorus (P)-Total	0.135		0.010	mg/L		18-AUG-17	R3803232
Sulfate in Water by IC	0.133		0.010	IIIg/L		16-AUG-17	K3003232
Sulfate (SO4)	39.7		3.0	mg/L		15-AUG-17	R3801595
Total Metals in Water by CRC ICPMS				J.			
Aluminum (Al)-Total	0.0744		0.0030	mg/L	17-AUG-17	24-AUG-17	R3812221
Arsenic (As)-Total	0.00090		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Cadmium (Cd)-Total	<0.000050		0.0000050	mg/L	17-AUG-17	24-AUG-17	R3812221
Calcium (Ca)-Total	55.1		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Chromium (Cr)-Total	0.00047		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Cobalt (Co)-Total	0.00023		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Copper (Cu)-Total	<0.00050		0.00050	mg/L	17-AUG-17	24-AUG-17	R3812221
Iron (Fe)-Total	4.25		0.010	mg/L	17-AUG-17	24-AUG-17	R3812221
Lead (Pb)-Total	0.000164		0.000050	mg/L	17-AUG-17	24-AUG-17	R3812221
Magnesium (Mg)-Total Manganese (Mn)-Total	66.6 0.214		0.0050 0.00010	mg/L	17-AUG-17 17-AUG-17	24-AUG-17 24-AUG-17	R3812221
Nickel (Ni)-Total	0.214		0.00010	mg/L mg/L	17-AUG-17 17-AUG-17	24-AUG-17 24-AUG-17	R3812221 R3812221
Potassium (K)-Total	16.2		0.00030	mg/L	17-AUG-17	24-AUG-17 24-AUG-17	R3812221
Sodium (Na)-Total	415		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	17-AUG-17	24-AUG-17	R3812221
Total Organic Carbon by Combustion				3			
Total Organic Carbon	12.3		0.50	mg/L		15-AUG-17	R3801141
Total Suspended Solids							
Total Suspended Solids	32		20	mg/L		16-AUG-17	R3802487
pH							
pH	7.45		0.10	pH units		15-AUG-17	R3801408

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

Reference Information

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Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRQC	Refer to report remarks for information regarding this QC result.

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

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

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Reference Information

Test Method References:

ALS Test Code Matrix Test Description Method Reference**

represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

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

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

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

- 1. All extraction and analysis holding times were met.
- 2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
- 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
- 4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-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 $44.5 - 0.2^{\circ}$ 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-COL-WP Water Phosphorus, Total APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus 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.

L1974918 CONTD....

PAGE 11 of 11 Version: FINAL

Reference Information

Test Method References:

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

PHENOLS-4AAP-WT Phenol (4AAP) **EPA 9066** Water

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 Sulfate in Water by IC Water 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.

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

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

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

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

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

ma/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.

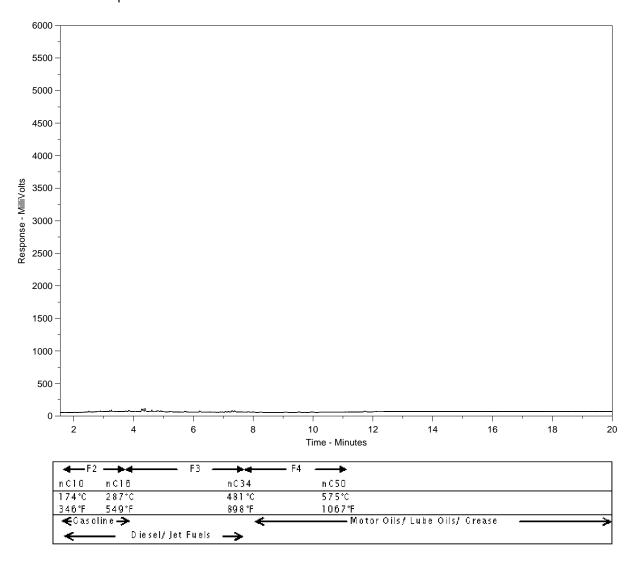
N/A - Result not available. Refer to qualifier code and definition for explanation.

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.



ALS Sample ID: L1974918-1 Client Sample ID: ARV-2



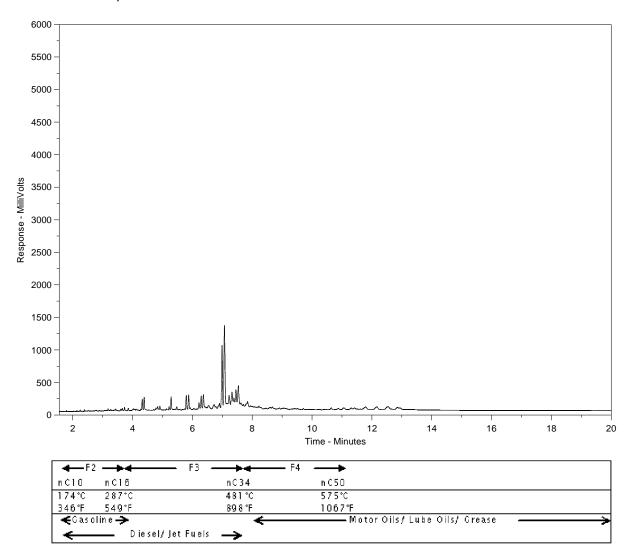
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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.



ALS Sample ID: L1974918-2 Client Sample ID: ARV-4



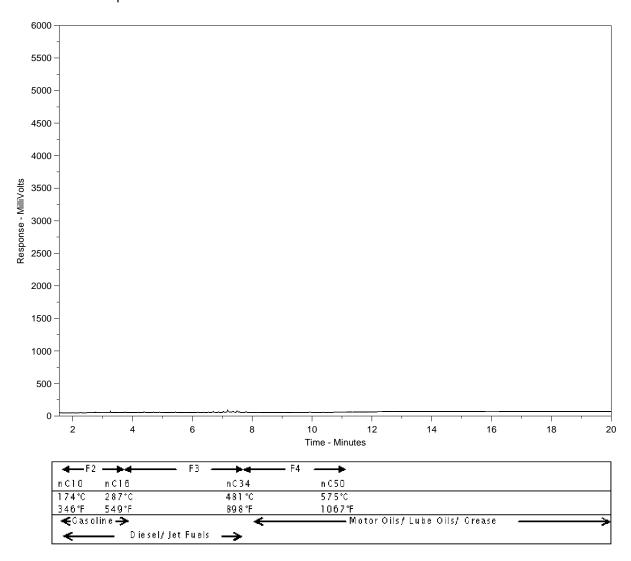
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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.



ALS Sample ID: L1974918-3 Client Sample ID: ARV-5



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.



Chain of Custody (COC) / Analytical Request Form

L1974918-COFC

DOC Number: 14 - 503439

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Canada Toll Free: 1 800 668 9878

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

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





Hamlet of Arviat

ATTN: STEVE ENGLAND

PO Box 150

Arviat NU XOC 0E0

Date Received: 21-SEP-17

Report Date: 04-OCT-17 11:29 (MT)

Version: FINAL

Client Phone: 867-857-2841

Certificate of Analysis

Lab Work Order #: L1995391
Project P.O. #: NOT SUBMITTED

Job Reference: ARVIAT

C of C Numbers: Legal Site Desc:

Craig Riddell, B.Sc.Ag Account 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



L1995391 CONTD.... PAGE 2 of 11 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1995391-1 ARV-2							
Sampled By: CLIENT on 19-SEP-17 @ 09:46							
Matrix:							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene Benzene	<0.00050		0.00050	mg/L		22-SEP-17	R3835402
Toluene	<0.0010		0.0010	mg/L		22-SEP-17	R3835402
Ethyl benzene	<0.00050		0.00050	mg/L		22-SEP-17	R3835402
o-Xylene	0.00082		0.00050	mg/L		22-SEP-17	R3835402
m+p-Xylenes	0.00139		0.00040	mg/L		22-SEP-17	R3835402
F1 (C6-C10)	<0.10		0.10	mg/L		22-SEP-17	R3835402
Surrogate: 4-Bromofluorobenzene (SS)	95.9		70-130	%		22-SEP-17	R3835402
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.21		0.10	mg/L	25-SEP-17	25-SEP-17	R3838933
F3 (C16-C34)	0.46		0.25	mg/L	25-SEP-17	25-SEP-17	R3838933
F4 (C34-C50)	<0.25		0.25	mg/L	25-SEP-17	25-SEP-17	R3838933
Surrogate: 2-Bromobenzotrifluoride	101.4		60-140	%	25-SEP-17	25-SEP-17	R3838933
CCME Total Hydrocarbons F1-BTEX	<0.10		0.10	mg/L		02-OCT-17	
F2-Naphth	0.10		0.10	mg/L		02-OCT-17 02-OCT-17	
F3-PAH	0.46		0.10	mg/L		02-OCT-17	
Total Hydrocarbons (C6-C50)	0.67		0.23	mg/L		02-OCT-17	
Sum of Xylene Isomer Concentrations	0.07		0.00	9, =		02 001 11	
Xylenes (Total)	0.00221		0.00064	mg/L		29-SEP-17	
				, and the second			
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Acenaphthene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Acenaphthylene	0.000041	EMPC	0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Anthracene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Acridine	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(a)anthracene	<0.000010		0.000010 0.0000050	mg/L	28-SEP-17 28-SEP-17	01-OCT-17 01-OCT-17	R3843371 R3843371
Benzo(a)pyrene Benzo(b&j)fluoranthene	<0.0000050 <0.000010		0.0000030	mg/L mg/L	28-SEP-17	01-OCT-17 01-OCT-17	R3843371
Benzo(g,h,i)perylene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(k)fluoranthene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Chrysene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Dibenzo(a,h)anthracene	<0.000050		0.000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Fluoranthene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Fluorene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Naphthalene	<0.000050		0.000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Phenanthrene	<0.000050		0.000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Pyrene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Quinoline	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	28-SEP-17	01-OCT-17	R3843371
Surrogate: Acenaphthene d10	89.3		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Acridine d9	110.7		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Nephthelene de	73.6		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Naphthalene d8 Surrogate: Phenanthrene d10	86.2		40-130	% %	28-SEP-17 28-SEP-17	01-OCT-17 01-OCT-17	R3843371
Nunavut WW Group 1	83.4		40-130	/0	20-3EF-17	01-001-17	R3843371
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	776		1.2	mg/L		26-SEP-17	
Alkalinity, Carbonate				<i>3</i> -			
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^{*} Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1995391 CONTD.... PAGE 3 of 11 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1995391-1 ARV-2							
Sampled By: CLIENT on 19-SEP-17 @ 09:46							
Matrix:							
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		26-SEP-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-SEP-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	636		1.0	mg/L		22-SEP-17	R3838056
Ammonia by colour	030		1.0	IIIg/L		22-0L1 -17	13030030
Ammonia, Total (as N)	9.0		2.0	mg/L		25-SEP-17	R3837944
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	23.8		6.0	mg/L		22-SEP-17	R3839889
Carbonaceous BOD BOD Carbonaceous	17.1		6.0	mg/L		22-SEP-17	R3839889
Chloride in Water by IC			0.0	9, =		, ,,	
Chloride (Cl)	430		5.0	mg/L		22-SEP-17	R3838328
Conductivity	04.5					00.055.45	Dogga = 5
Conductivity Fecal coliforms, 1:10 dilution by QT97	2410		1.0	umhos/cm		22-SEP-17	R3838056
Fecal Coliforms	20		10	MPN/100mL		21-SEP-17	R3835993
Note: Result may be biased high							
Hardness Calculated							
Hardness (as CaCO3)	1130	HTC	0.20	mg/L		02-OCT-17	
Mercury Total Mercury (Hg)-Total	0.0000057		0.0000050	mg/L	25-SEP-17	25-SEP-17	R3838518
Nitrate in Water by IC	0.000007		0.0000000	9/ _	20 021 17	20 02	110000010
Nitrate (as N)	<0.20	DLM	0.20	mg/L		22-SEP-17	R3838328
Nitrate+Nitrite						00.050.47	
Nitrate and Nitrite as N Nitrite in Water by IC	<0.22		0.22	mg/L		26-SEP-17	
Nitrite (as N)	<0.10	DLM	0.10	mg/L		22-SEP-17	R3838328
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		28-SEP-17	R3840262
Phenol (4AAP) Phenols (4AAP)	0.0042		0.0010	mg/L		28-SEP-17	D2040625
Phosphorus, Total	0.0042		0.0010	IIIg/L		20-3LF-11	R3840625
Phosphorus (P)-Total	1.01		0.010	mg/L		25-SEP-17	R3837200
Sulfate in Water by IC							
Sulfate (SO4)	536		3.0	mg/L		22-SEP-17	R3838328
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	0.0147		0.0030	mg/L	25-SEP-17	27-SEP-17	R3840272
Arsenic (As)-Total	0.00853		0.0030	mg/L	25-SEP-17	27-SEP-17	R3840272
Cadmium (Cd)-Total	0.0000912		0.0000050	mg/L	25-SEP-17	27-SEP-17	R3840272
Calcium (Ca)-Total	343		0.050	mg/L	25-SEP-17	27-SEP-17	R3840272
Chromium (Cr)-Total	0.00127		0.00010	mg/L	25-SEP-17	27-SEP-17	R3840272
Cobalt (Co)-Total	0.00098		0.00010	mg/L	25-SEP-17	27-SEP-17	R3840272
Copper (Cu)-Total Iron (Fe)-Total	0.00677 1.84		0.00050 0.010	mg/L mg/L	25-SEP-17 25-SEP-17	27-SEP-17 27-SEP-17	R3840272 R3840272
Lead (Pb)-Total	0.00134		0.000050	mg/L	25-SEP-17	27-SEP-17	R3840272
Magnesium (Mg)-Total	66.9		0.0050	mg/L	25-SEP-17	27-SEP-17	R3840272
Manganese (Mn)-Total	0.804		0.0010	mg/L	25-SEP-17	29-SEP-17	R3842217
Nickel (Ni)-Total	0.00672		0.00050	mg/L	25-SEP-17	27-SEP-17	R3840272
Potassium (K)-Total	59.5		0.050	mg/L	25-SEP-17	27-SEP-17	R3840272
Sodium (Na)-Total Zinc (Zn)-Total	307 0.0312		0.050 0.0030	mg/L mg/L	25-SEP-17 25-SEP-17	27-SEP-17 27-SEP-17	R3840272 R3840272
2.110 (211) Total	0.0312		0.0030	iiig/L	20-0L1-17	21-0L1-11	113040212

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

L1995391 CONTD.... PAGE 4 of 11 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1995391-1 ARV-2							
Sampled By: CLIENT on 19-SEP-17 @ 09:46							
Matrix:							
Total Organic Carbon by Combustion Total Organic Carbon	37.3		0.50	mg/L		28-SEP-17	R3841020
Total Suspended Solids Total Suspended Solids	35.0		5.0	mg/L		26-SEP-17	R3838862
pH pH	7.78		0.10	pH units		22-SEP-17	R3838056
L1995391-2 ARV-4							
Sampled By: CLIENT on 19-SEP-17 @ 09:26 Matrix:							
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	237		1.2	mg/L		26-SEP-17	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		26-SEP-17	
Alkalinity, Hydroxide Hydroxide (OH)						26-SEP-17	
Alkalinity, Total (as CaCO3)	<0.34		0.34	mg/L			
Alkalinity, Total (as CaCO3) Ammonia by colour	194		1.0	mg/L		22-SEP-17	R3838056
Ammonia, Total (as N) Biochemical Oxygen Demand (BOD)	19.4		2.0	mg/L		25-SEP-17	R3837944
Biochemical Oxygen Demand Carbonaceous BOD	5.6		2.0	mg/L		22-SEP-17	R3839889
BOD Carbonaceous	2.2		2.0	mg/L		22-SEP-17	R3839889
Chloride in Water by IC Chloride (CI)	517		5.0	mg/L		22-SEP-17	R3838328
Conductivity Conductivity	1830		1.0	umhos/cm		22-SEP-17	R3838056
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	190		10	MPN/100mL		21-SEP-17	R3835993
Note: Result may be biased high Hardness Calculated							
Hardness (as CaCO3)	254	нтс	0.20	mg/L		28-SEP-17	
Mercury Total Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	25-SEP-17	25-SEP-17	R3838518
Nitrate in Water by IC Nitrate (as N)	1.94		0.20	mg/L		22-SEP-17	R3838328
Nitrate+Nitrite Nitrate and Nitrite as N	2.15		0.22	mg/L		26-SEP-17	
Nitrite in Water by IC Nitrite (as N)	0.21		0.10	mg/L		22-SEP-17	R3838328
Oil & Grease - Gravimetric Oil and Grease	5.5		5.0	mg/L		29-SEP-17	R3841172
Phenol (4AAP) Phenols (4AAP)	0.0033		0.0010	mg/L		28-SEP-17	R3840625
Phosphorus, Total Phosphorus (P)-Total	0.918		0.010	mg/L		25-SEP-17	R3837200
Sulfate in Water by IC Sulfate (SO4)	66.0		3.0	mg/L		22-SEP-17	R3838328
Total Metals in Water by CRC ICPMS					05 050 47		
Aluminum (AI)-Total Arsenic (As)-Total	0.0259 0.00335		0.0030 0.00010	mg/L mg/L	25-SEP-17 25-SEP-17	27-SEP-17 27-SEP-17	R3840272 R3840272

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

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Sample Details/Parameters	Result	Qualifier* D.L.	Units	Extracted	Analyzed	Batch
L1995391-2 ARV-4						
Sampled By: CLIENT on 19-SEP-17 @ 09:26						
Matrix:						
Total Metals in Water by CRC ICPMS						
Cadmium (Cd)-Total	0.0000191	0.0000050	mg/L	25-SEP-17	27-SEP-17	R3840272
Calcium (Ca)-Total	44.1	0.050	mg/L	25-SEP-17	27-SEP-17	R3840272
Chromium (Cr)-Total	0.00038	0.00010	mg/L	25-SEP-17	27-SEP-17	R3840272
Cobalt (Co)-Total	0.00113	0.00010	mg/L	25-SEP-17	27-SEP-17	R3840272
Copper (Cu)-Total	0.00448	0.00050	mg/L	25-SEP-17	27-SEP-17	R3840272
Iron (Fe)-Total	1.72	0.010	mg/L	25-SEP-17	27-SEP-17	R3840272
Lead (Pb)-Total	0.000142	0.000050	mg/L	25-SEP-17	27-SEP-17	R3840272
Magnesium (Mg)-Total	34.8	0.0050	mg/L	25-SEP-17	27-SEP-17	R3840272
Manganese (Mn)-Total	0.708	0.00010	mg/L	25-SEP-17	27-SEP-17	R3840272
Nickel (Ni)-Total	0.00419	0.00050	mg/L	25-SEP-17	27-SEP-17	R3840272
Potassium (K)-Total	24.2	0.050	mg/L	25-SEP-17	27-SEP-17	R3840272
Sodium (Na)-Total	315	0.050	mg/L	25-SEP-17	27-SEP-17	R3840272
Zinc (Zn)-Total	0.0051	0.0030	mg/L	25-SEP-17	27-SEP-17	R3840272
Total Organic Carbon by Combustion Total Organic Carbon	17.6	0.50	mg/L		28-SEP-17	R3841020
Total Suspended Solids	0.71	0.50	ilig/L		20-3EF-17	1020
Total Suspended Solids Total Suspended Solids	13.0	5.0	mg/L		26-SEP-17	R3838862
pH	10.0	0.0	9/ =		20 02	110000002
pH	7.18	0.10	pH units		22-SEP-17	R3838056
L1995391-3 ARV-5			-			
Sampled By: CLIENT on 19-SEP-17 @ 09:46						
Matrix:						
BTEX plus F1-F4						
BTX plus F1 by GCMS						
Benzene	<0.00050	0.00050	mg/L		22-SEP-17	R3835402
Toluene	<0.0010	0.0010	mg/L		22-SEP-17	R3835402
Ethyl benzene	<0.00050	0.00050	mg/L		22-SEP-17	R3835402
o-Xylene	<0.00050	0.00050	mg/L		22-SEP-17	R3835402
m+p-Xylenes	<0.00040	0.00040	mg/L		22-SEP-17	R3835402
F1 (C6-C10)	<0.10	0.10	mg/L		22-SEP-17	R3835402
Surrogate: 4-Bromofluorobenzene (SS)	90.1	70-130	%		22-SEP-17	R3835402
CCME PHC F2-F4 in Water	0.40	0.40	/1	00 050 47	05 CED 47	Doggooo
F2 (C10-C16)	<0.10	0.10	mg/L	22-SEP-17	25-SEP-17	R3838933
F3 (C16-C34) F4 (C34-C50)	<0.25 <0.25	0.25 0.25	mg/L	22-SEP-17 22-SEP-17	25-SEP-17 25-SEP-17	R3838933 R3838933
Surrogate: 2-Bromobenzotrifluoride	95.0	60-140	mg/L %	22-SEP-17 22-SEP-17	25-SEP-17 25-SEP-17	R3838933
CCME Total Hydrocarbons	90.0	00-140	70	22 OLI -11	20 OLI -11	110000000
F1-BTEX	<0.10	0.10	mg/L		02-OCT-17	
F2-Naphth	<0.10	0.10	mg/L		02-OCT-17	
F3-PAH	<0.25	0.25	mg/L		02-OCT-17	
Total Hydrocarbons (C6-C50)	<0.38	0.38	mg/L		02-OCT-17	
Sum of Xylene Isomer Concentrations						
Xylenes (Total)	<0.00064	0.00064	mg/L		26-SEP-17	
Polyaromatic Hydrocarbons (PAHs)	.0.000000	0.000000	m c:/l	20 000 47	04 007 47	D0040074
1-Methyl Naphthalene 2-Methyl Naphthalene	<0.000020	0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Acenaphthene	<0.000020	0.000020	mg/L	28-SEP-17 28-SEP-17	01-OCT-17 01-OCT-17	R3843371 R3843371
Acenaphthylene	<0.000020 <0.000020	0.000020 0.000020	mg/L mg/L	28-SEP-17 28-SEP-17	01-OCT-17 01-OCT-17	R3843371
Anthracene	<0.000020	0.000020	mg/L	28-SEP-17	01-OCT-17 01-OCT-17	R3843371
Acridine	0.000010	0.000010	mg/L	28-SEP-17	01-OCT-17 01-OCT-17	R3843371
-		0.000020	··· <i>a</i> · =			1.00.007.1

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1995391-3 ARV-5							
Sampled By: CLIENT on 19-SEP-17 @ 09:46							
Matrix:							
Polyaromatic Hydrocarbons (PAHs)							
Benzo(a)anthracene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(a)pyrene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(k)fluoranthene	<0.00010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Chrysene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Dibenzo(a,h)anthracene	<0.000050		0.0000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Fluoranthene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Fluorene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Naphthalene	<0.000050		0.000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Phenanthrene	<0.000050		0.000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Pyrene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Quinoline	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	28-SEP-17	01-OCT-17	R3843371
Surrogate: Acenaphthene d10	96.6		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Acridine d9	111.7		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Chrysene d12	54.3		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Naphthalene d8	91.0		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Phenanthrene d10	91.1		40-130	%	28-SEP-17	01-OCT-17	R3843371
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	42.5		1.2	mg/L		26-SEP-17	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		26-SEP-17	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		26-SEP-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	34.8		1.0	mg/L		22-SEP-17	R3838056
Ammonia by colour Ammonia, Total (as N)	<0.010		0.010	mg/L		22-SEP-17	R3837049
Biochemical Oxygen Demand (BOD)	<0.010		0.010	IIIg/L		22-3LF-17	K3037049
Biochemical Oxygen Demand	<2.0		2.0	mg/L		22-SEP-17	R3839889
Carbonaceous BOD BOD Carbonaceous	<2.0		2.0	mg/L		22-SEP-17	R3839889
Chloride in Water by IC Chloride (CI)	277		1.0	mg/L		22-SEP-17	R3838328
Conductivity Conductivity	1010		1.0	umhos/cm		22-SEP-17	R3838056
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	10		10	MPN/100mL		21-SEP-17	R3835993
Note: Result may be biased high			• •				
Hardness Calculated Hardness (as CaCO3)	204	HTC	0.20	mg/L		28-SEP-17	
Mercury Total			0.20	9/ =			
Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	25-SEP-17	25-SEP-17	R3838518
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		22-SEP-17	R3838328
Nitrate+Nitrite Nitrate and Nitrite as N	<0.070		0.070	mg/L		26-SEP-17	
Nitrite in Water by IC	Q.070		0.070	illy/L		20 OLI - 11	
Nitrite (as N)	<0.020	DLM	0.020	mg/L		22-SEP-17	R3838328

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1995391-3 ARV-5							
Sampled By: CLIENT on 19-SEP-17 @ 09:46							
Matrix:							
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		29-SEP-17	R3841172
Phenol (4AAP)	10.0		0.0				
Phenols (4AAP)	<0.0010		0.0010	mg/L		28-SEP-17	R3840625
Phosphorus, Total							
Phosphorus (P)-Total	0.013		0.010	mg/L		25-SEP-17	R3837200
Sulfate in Water by IC	00.4		0.00	o-/I		00 CED 47	Danagaaa
Sulfate (SO4) Total Metals in Water by CRC ICPMS	80.1		0.60	mg/L		22-SEP-17	R3838328
Aluminum (Al)-Total	0.0096		0.0030	mg/L	25-SEP-17	27-SEP-17	R3840272
Arsenic (As)-Total	0.00029		0.00010	mg/L	25-SEP-17	27-SEP-17	R3840272
Cadmium (Cd)-Total	<0.000050		0.0000050	mg/L	25-SEP-17	27-SEP-17	R3840272
Calcium (Ca)-Total	40.6		0.050	mg/L	25-SEP-17	27-SEP-17	R3840272
Chromium (Cr)-Total	0.00014		0.00010	mg/L	25-SEP-17	27-SEP-17	R3840272
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	25-SEP-17	27-SEP-17	R3840272
Copper (Cu)-Total	0.00058		0.00050	mg/L	25-SEP-17	27-SEP-17	R3840272
Iron (Fe)-Total	0.207		0.010	mg/L	25-SEP-17	27-SEP-17	R3840272
Lead (Pb)-Total	0.000064		0.000050	mg/L	25-SEP-17	27-SEP-17	R3840272
Magnesium (Mg)-Total	25.0		0.0050	mg/L	25-SEP-17	27-SEP-17	R3840272
Manganese (Mn)-Total	0.0322		0.00010	mg/L	25-SEP-17	27-SEP-17	R3840272
Nickel (Ni)-Total Potassium (K)-Total	0.00058 7.72		0.00050 0.050	mg/L	25-SEP-17 25-SEP-17	27-SEP-17 27-SEP-17	R3840272 R3840272
Sodium (Na)-Total	140		0.050	mg/L mg/L	25-SEP-17 25-SEP-17	27-SEP-17 27-SEP-17	R3840272
Zinc (Zn)-Total	0.0084		0.000	mg/L	25-SEP-17	27-SEP-17	R3840272
Total Organic Carbon by Combustion	0.0001		0.0000	9/ =			1100 10272
Total Organic Carbon	7.23		0.50	mg/L		28-SEP-17	R3841020
Total Suspended Solids							
Total Suspended Solids	5.0		5.0	mg/L		26-SEP-17	R3838862
pH						00.055.47	
pH	6.96		0.10	pH units		22-SEP-17	R3838056
L1995391-4 ARV-6 (PAH'S ONLY)							
Sampled By: CLIENT on 19-SEP-17 @ 09:46							
Matrix:							
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Acenaphthene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Acenaphthylene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Anthracene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Acridine	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(a)anthracene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(g,h,i)perylene Benzo(k)fluoranthene	<0.000020		0.000020	mg/L	28-SEP-17 28-SEP-17	01-OCT-17 01-OCT-17	R3843371
Chrysene	<0.000010 <0.000020		0.000010 0.000020	mg/L mg/L	28-SEP-17 28-SEP-17	01-OCT-17 01-OCT-17	R3843371 R3843371
Dibenzo(a,h)anthracene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17 01-OCT-17	R3843371
Fluoranthene	<0.000030		0.0000030	mg/L	28-SEP-17	01-OCT-17	R3843371
Fluorene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Naphthalene	<0.000050		0.000050	mg/L	28-SEP-17	01-OCT-17	R3843371
			·				

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
LACCECCA A ARVING (RALIES CANAVA							
L1995391-4 ARV-6 (PAH'S ONLY)							
Sampled By: CLIENT on 19-SEP-17 @ 09:46							
Matrix:							
Polyaromatic Hydrocarbons (PAHs)							
Phenanthrene	<0.000050		0.000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Pyrene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Quinoline	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	28-SEP-17	01-OCT-17	R3843371
Surrogate: Acenaphthene d10 Surrogate: Acridine d9	95.6		40-130	%	28-SEP-17 28-SEP-17	01-OCT-17	R3843371
Surrogate: Actionie d9 Surrogate: Chrysene d12	111.1		40-130 40-130	%	28-SEP-17 28-SEP-17	01-OCT-17	R3843371
Surrogate: Naphthalene d8	103.3 86.1		40-130	% %	28-SEP-17	01-OCT-17 01-OCT-17	R3843371
Surrogate: Phenanthrene d10				% %	28-SEP-17	01-OCT-17 01-OCT-17	R3843371
Surrogate. Friendrithene u to	96.5		40-130	70	20-SEP-17	01-001-17	R3843371

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

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Reference Information

Sample Parameter Qualifier Kev:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
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.

CALCULATION ALK-HCO3HCO3-CALC-Water Alkalinity, Bicarbonate

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 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.

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 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 CCME CWS-PHC, Pub #1310, Dec 2001-L Water **CCME Total Hydrocarbons**

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.

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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 $44.5 - 0.2^{\circ}$ 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 & Greace is determined from the weight of the residue in the vial.

Grease is determined from the weight of the residue in the vial.

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

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus 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.

L1995391 CONTD....

PAGE 11 of 11 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.

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

WP

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

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

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

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.

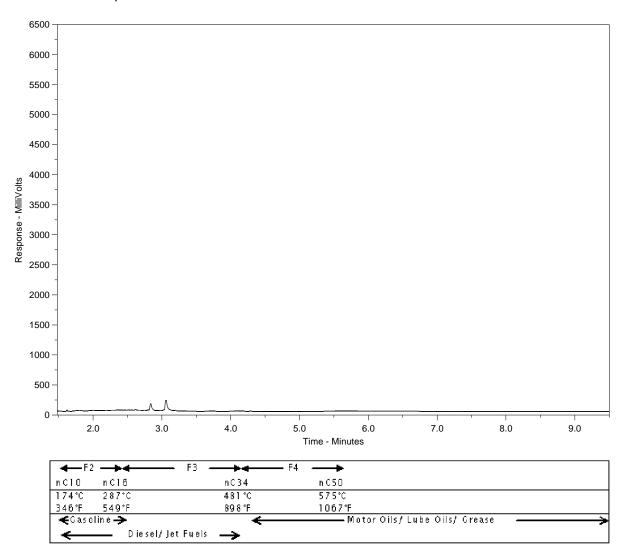
N/A - Result not available. Refer to qualifier code and definition for explanation.

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.



ALS Sample ID: L1995391-1 Client Sample ID: ARV-2



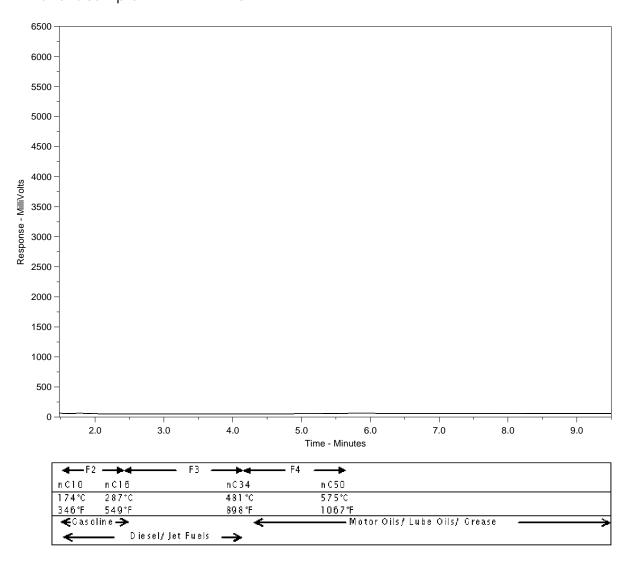
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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.



ALS Sample ID: L1995391-3 Client Sample ID: ARV-5



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.



coc Number: 14 - 503445

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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form. Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy. WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Arviat Old Sewage Lagoon Sampling Results Part D, Item 2; ARV-4 Effluent Quality limits

Parameter	Maximum Concentration of any grab sample	10-Aug-17
BOD	80 mg/L	2.8
Total Suspended Solids	100 mg/L	10
Fecal Coliforms	1 x 10 ⁴ CFU/100mL	30
Oil & Grease	no visible sheen	5
рН	between 6 and 9	8.84



Hamlet of Arviat

ATTN: STEVE ENGLAND

PO Box 150

Arviat NU XOC 0E0

Date Received: 15-AUG-17

Report Date: 28-AUG-17 06:58 (MT)

Version: FINAL

Client Phone: 867-857-2841

Certificate of Analysis

Lab Work Order #: L1974928
Project P.O. #: NOT SUBMITTED

Job Reference: HAMLET OF ARVIAT LAGOON

C of C Numbers: Legal Site Desc:

Comments: NOTE: Frac -2 Active Sewage Lagoon - Lab Error - BOD analysis not processed.

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

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L1974928 CONTD.... PAGE 2 of 7 Version: FINAL

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1974928-1 OLD SEWAGE LAGOON							
Sampled By: CLIENT on 10-AUG-17 @ 10:26							
Matrix: WW							
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	69.9		1.2	mg/L		16-AUG-17	
Alkalinity, Carbonate	00.0		1.2	9/ _		107.00 17	
Carbonate (CO3)	5.04		0.60	mg/L		16-AUG-17	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		16-AUG-17	
Alkalinity, Total (as CaCO3)	<0.34		0.34	IIIg/L		10-400-17	
Alkalinity, Total (as CaCO3)	65.7		1.0	mg/L		15-AUG-17	R3801408
Ammonia by colour	0.54		0.40			04 4110 47	D0000770
Ammonia, Total (as N) Biochemical Oxygen Demand (BOD)	0.54		0.10	mg/L		24-AUG-17	R3808778
Biochemical Oxygen Demand	2.8		2.0	mg/L		16-AUG-17	R3804913
Carbonaceous BOD			_			46.41.5	
BOD Carbonaceous Chloride in Water by IC	<2.0		2.0	mg/L		16-AUG-17	R3804913
Chloride (Cl)	57.1		0.50	mg/L		15-AUG-17	R3801595
Conductivity							
Conductivity	304		1.0	umhos/cm		15-AUG-17	R3801408
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	30		10	MPN/100mL		15-AUG-17	R3801179
Hardness Calculated							
Hardness (as CaCO3)	61.1	HTC	0.20	mg/L		26-AUG-17	
Mercury Total Mercury (Hg)-Total	0.0000091		0.0000050	mg/L	17-AUG-17	22-AUG-17	R3807514
Nitrate in Water by IC							
Nitrate (as N)	0.111		0.020	mg/L		15-AUG-17	R3801595
Nitrate+Nitrite Nitrate and Nitrite as N	0.178		0.070	mg/L		16-AUG-17	
Nitrite in Water by IC	0.170		0.070	9/ _		107.00 17	
Nitrite (as N)	0.067		0.010	mg/L		15-AUG-17	R3801595
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		21-AUG-17	R3804941
Phenol (4AAP)	<5.0		3.0	IIIg/L		21-400-17	13004341
Phenols (4AAP)	<0.0010		0.0010	mg/L		18-AUG-17	R3802986
Phosphorus, Total Phosphorus (P)-Total	2.02		0.050	ma/l		10 110 47	Dagoaga
Sulfate in Water by IC	2.03		0.050	mg/L		18-AUG-17	R3803232
Sulfate (SO4)	1.07		0.30	mg/L		15-AUG-17	R3801595
Total Metals in Water by CRC ICPMS	0.000		0.0000	ma/l	17 110 17	24-AUG-17	D2042004
Aluminum (Al)-Total Arsenic (As)-Total	0.233 0.00188		0.0030 0.00010	mg/L mg/L	17-AUG-17 17-AUG-17	24-AUG-17 24-AUG-17	R3812221 R3812221
Cadmium (Cd)-Total	<0.000050		0.0000050	mg/L	17-AUG-17	24-AUG-17	R3812221
Calcium (Ca)-Total	13.9		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Chromium (Cr)-Total	0.00038		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Cobalt (Co)-Total	0.00037		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Copper (Cu)-Total	0.00830		0.00050	mg/L	17-AUG-17	24-AUG-17	R3812221
Iron (Fe)-Total	1.73		0.010	mg/L	17-AUG-17	24-AUG-17	R3812221
Lead (Pb)-Total	0.000823		0.000050	mg/L	17-AUG-17	24-AUG-17	R3812221
Magnesium (Mg)-Total	6.41		0.0050	mg/L	17-AUG-17	24-AUG-17	R3812221
Manganese (Mn)-Total	0.0695		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Nickel (Ni)-Total	0.00200		0.00050	mg/L	17-AUG-17	24-AUG-17	R3812221
				-			

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

L1974928 CONTD.... PAGE 3 of 7 Version: FINAL

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1974928-1 OLD SEWAGE LAGOON							
Sampled By: CLIENT on 10-AUG-17 @ 10:26							
Matrix: WW							
Total Metals in Water by CRC ICPMS Potassium (K)-Total	4.85		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Sodium (Na)-Total	38.1		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Zinc (Zn)-Total	0.0098		0.0030	mg/L	17-AUG-17	24-AUG-17	R3812221
Total Organic Carbon by Combustion Total Organic Carbon	165		5.0	mg/L		15-AUG-17	R3801141
Total Suspended Solids Total Suspended Solids	<10		10	mg/L		16-AUG-17	R3802487
рН							
рН	8.84		0.10	pH units		15-AUG-17	R3801408
L1974928-2 ACTIVE SEWAGE LAGOON							
Sampled By: CLIENT on 10-AUG-17 @ 10:38							
Matrix: WW Miscellaneous Parameters							
Sample Comment	See Reference					23-AUG-17	
·	Information						
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	391		1.2	mg/L		16-AUG-17	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		16-AUG-17	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		16-AUG-17	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	321		1.0	mg/L		15-AUG-17	R3801408
Ammonia by colour Ammonia, Total (as N)	76		10	mg/L		24-AUG-17	R3808778
Carbonaceous BOD BOD Carbonaceous	182	BODP	50	mg/L		16-AUG-17	R3804913
Chloride in Water by IC Chloride (CI)	59.5		1.0	mg/L		15-AUG-17	R3801595
Conductivity Conductivity	911		1.0	umhos/cm		15-AUG-17	R3801408
Fecal coliforms, 1:10 dilution by QT97	311		1.0	dillios/oili		107.00 17	113001400
Fecal Coliforms	>24200		10	MPN/100mL		15-AUG-17	R3801179
Hardness Calculated Hardness (as CaCO3)	42.4	нтс	0.20	mg/L		26-AUG-17	
Mercury Total Mercury (Hg)-Total	0.000017		0.000010	mg/L	17-AUG-17	22-AUG-17	R3807514
Nitrate in Water by IC Nitrate (as N)	<0.040	DLM	0.040	mg/L		15-AUG-17	R3801595
Nitrate+Nitrite Nitrate and Nitrite as N	<0.070		0.070	mg/L		16-AUG-17	
Nitrite in Water by IC Nitrite (as N)	<0.020	DLM	0.020	mg/L		15-AUG-17	R3801595
Oil & Grease - Gravimetric	10.020		0.020				.10001000
Oil and Grease	43.9		5.0	mg/L		21-AUG-17	R3804941
Phenol (4AAP) Phenols (4AAP)	1.19	DLM	0.010	mg/L		18-AUG-17	R3802986
Phosphorus, Total Phosphorus (P)-Total	9.60		0.25	mg/L		18-AUG-17	R3803232
Sulfate in Water by IC Sulfate (SO4)	<0.60	DLM	0.60	mg/L		15-AUG-17	R3801595
,	15.00			<i>y</i> –			

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

L1974928 CONTD.... PAGE 4 of 7 Version: FINAL

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
14074029 2 ACTIVE CEVA CE LACCON							
L1974928-2 ACTIVE SEWAGE LAGOON							
Sampled By: CLIENT on 10-AUG-17 @ 10:38							
Matrix: WW							
Total Metals in Water by CRC ICPMS	0.744		0.0000	/1	47 110 47	04 4110 47	D0040004
Aluminum (Al)-Total Arsenic (As)-Total	0.711 0.00069		0.0030 0.00010	mg/L	17-AUG-17 17-AUG-17	24-AUG-17 24-AUG-17	R3812221
Cadmium (Cd)-Total	0.00069		0.00010	mg/L mg/L	17-AUG-17 17-AUG-17	24-AUG-17 24-AUG-17	R3812221 R3812221
Calcium (Ca) Total	9.28		0.000	mg/L	17-AUG-17	24-AUG-17	R3812221
Chromium (Cr)-Total	0.00157		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Cobalt (Co)-Total	0.00076		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Copper (Cu)-Total	0.144		0.00050	mg/L	17-AUG-17	24-AUG-17	R3812221
Iron (Fe)-Total	0.737		0.010	mg/L	17-AUG-17	24-AUG-17	R3812221
Lead (Pb)-Total	0.00224		0.000050	mg/L	17-AUG-17	24-AUG-17	R3812221
Magnesium (Mg)-Total	4.67		0.0050	mg/L	17-AUG-17	24-AUG-17	R3812221
Manganese (Mn)-Total	0.0573		0.00010	mg/L	17-AUG-17	24-AUG-17	R3812221
Nickel (Ni)-Total	0.00377		0.00050	mg/L	17-AUG-17	24-AUG-17	R3812221
Potassium (K)-Total	26.4		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Sodium (Na)-Total	54.5		0.050	mg/L	17-AUG-17	24-AUG-17	R3812221
Zinc (Zn)-Total	0.136		0.0030	mg/L	17-AUG-17	24-AUG-17	R3812221
Total Organic Carbon by Combustion	45.0		0.50			45 4110 47	Doggatta
Total Organic Carbon	15.3		0.50	mg/L		15-AUG-17	R3801141
Total Suspended Solids Total Suspended Solids	64		20	mg/L		16-AUG-17	R3802487
pH	04		20	IIIg/L		10-AUG-17	K3002407
pH pH	7.40		0.10	pH units		15-AUG-17	R3801408
	7.10		0.10	pri dinito			110001100

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

L1974928 CONTD....

PAGE 5 of 7 Version: FINAL

Reference Information

Sample Parameter Qualifier Kev:

Qualifier	Description
BODP	BOD dilution results differed by more than 30% RPD. Precision of reported BOD result may be less than usual.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
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.

CALCULATION ALK-HCO3HCO3-CALC-Water Alkalinity, Bicarbonate

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)

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 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.

CI -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 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.

MFT-T-CCMS-WP Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod.) HAMLET OF ARVIAT LAGOON L1974928 CONTD....

Reference Information

PAGE 6 of 7 Version: FINAL

Test Method References:

ALS Test Code Matrix Test Description Method Reference**

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

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

NH3-COL-WP Water Ammonia by colour APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium

nitroprusside and measured colourmetrically.

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

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

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

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

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

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

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

Grease is determined from the weight of the residue in the vial.

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

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus 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.

RESULT-NOT-REP-WP Misc. Result not reported RESULT NOT REPORTED

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:

HAMLET OF ARVIAT LAGOON L1974928 CONTD....

Reference Information

PAGE 7 of 7 Version: FINAL

Test Method References:

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

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

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1974928-COFC

coc Number: 15 - 571749

LENERAL TERMS OF CONDITIONS

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Hazardous Materials Spill Database

Environment Division of ENR Scotia 6, 5102-50th Avenue; Yellowknife, NT X1A 3S8 Phone: (867) 873-7654 Fax: (867) 873-0221

Sorted By: SpillNo for the year(s):

Spill No.	Date	Ter	Region	Location	Site Description	Commodity	Quantity	Source	Agency
2017053	2017-02-23	NU	KEE	Arviat	New water treatment plant	Fuel	14 L	ST<	GN
2017146	2017-05-04	NU	KEE	Arviat	700 E - 9th Ave / 385 E	Heating Fuel P-40	100 L	PL	GN
2017163	2017-05-15	NU	KEE	Arviat	Alliance Church	Heating Fuel P-50	0 L	ST<	GN
2017177	2017-05-26	NU	KEE	Arviat	QEC Arviat Power Plant	Diesel P-50	0 L	PL	GN
2017192	2017-06-01	NU	KEE	Arviat	Arviat Health Centre Fuel Tank	Heating Fuel P-50	100 L	TRU	GN
2017193	2017-06-01	NU	KEE	Arviat	John Arnalukuaq High School Fuel Tank	Heating Fuel P-50	100 L	TRU	GN
2017194	2017-06-02	NU	KEE	Arviat	Aviat Health Centre Heat Trace	Dowfrost Heat Transfer Fluid	0 L	PL	GN
2017211	2017-06-16	NU	KEE	Arviat	Arviat Paolei Hotel	Heating Fuel P-50	0 L	ST<	GN
2017227	2017-06-28	NU	KEE	Arviat	Shoreline by RCMP	Fuel	13 L	ST<	GN
2017229	2017-06-29	NU	KEE	Arviat	Arviat	Heating Fuel P-50	70 L	PL	GN
2017302	2017-08-17	NU	KEE	Arviat	Arviat, 701 1st Avenue	Heating Fuel P-50	100 L	PL	GN
2017304	2017-08-18	NU	KEE	Arviat	Aviat, Fuel deliver staging area	Gasoline	200 L	PL	GN
2017315	2017-08-29	NU	KEE	Arviat	Unit 614, 407 6th Avenue, Arviat, NT, 61 06 31.05N 94 03 55.82W	Heating Fuel P-50	300 L	PL	GN
2017422	2017-11-10	NU	KEE	Arviat	Arviat Health Center exterior fuel tank asset #113635	Heating Fuel P-50	100 L	UK	GN

Total Spills on this Report: 14

This report contains information regarding spills that were reported to the NWT 24-Hour Spill Line. The absence of information on any particular location in no way guarantees that contamination has not occurred at that location.

		LEGEND		
Region:	Source:			Agency:
BAF - Baffin	AIR - Aircraft	PL - Pipe or Line	TP - Tailings Pond	CCG - Canadian Coast Guard
DEH - Deh Cho	DRUM - Drum or Barrel	RT - Rail Train	TRU - Truck	EP - Environment Canada
INU - Inuvik KEE - Keewatin	MV - Marine Vessel	SL - Sewage Lagoon ST< - Storage Tank <4000 litres	UK - Unkown	GN - Government of Nunavut GNWT - Government of Northwest Territories
KIT - Kitikmeot	NS - Natural Seepage OTH - Other Transportation	ST> - Storage Tank >4000 litres	WELL - Wet Wells, Flaring Boom	ILA - Inuvialiut Land Administration
NSL - North Slave	OTTI - Ottici Transportation	OTF - Otolage Tallik - 4000 littes	Boom	INAC - Indian and Northern Affairs Canada
SAH - Sahtu				NEB - National Energy Board
SSL - South Slave				

ARV-2a																		1		
-				2014				015				2016	1			017			Statistics	
Parameter	Unit	DL	15-Jul-14	01-Aug-14	12-Sep-14	15-Jun-15	21-Jul-15	18-Aug-15	16-Sep-15	22-Jun-16	12-Jul-16	25-Aug-16	16-Sep-16	19-Jun-17	12-Jul-17	10-Aug-17	19-Sep-17	Min	Max	Average
Alkalinity	-			,																
Bicarbonate (HCO3)	mg/L	1.2	800	/	628	/	934	722	634	490	429	537	704	243	356	366	776	243	934	586.08
Carbonate (CO3)	mg/L	0.60	12	/	12	/	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.6	12	2.35
Hydroxide (OH)	mg/L	0.34	6.8	/	6.8	/	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	6.8	1.33
Total (as CaCO3)	mg/L	1.0	656	/	515	/	766	592	520	401	352	440	577	199	292	300	636	199	766	480.46
Ammonia by Colour	/1	0.040	42.0	40.4	5.6	0.440	440	0.6	F. C	0.2	6.46	5.0	45.0	0.00	2.05	2.75	0.00	0.440	45.0	7.07
Total (as N)	mg/L	0.010	12.0	12.1	5.6	0.119	14.0	8.6	5.6	9.2	6.16	5.0	15.2	0.90	2.85	2.75	9.00	0.119	15.2	7.27
Biochemical Oxygen Demand (BOD)	/1	20	27.4	27.2	44.2	2.2	70	24.4	47.0	20.2	24.0	20.4	40.4	F4	25.2	20	22.0	2.2	70	22.04
Biochemical Oxygen Demand	mg/L	20	37.4	37.2	41.2	2.2	79	34.1	17.8	20.3	31.8	28.1	18.1	51	35.2	38	23.8	2.2	79	33.01
Carbonaceous BOD BOD Carbonaceous		20	24.1	1	20.0	1	40	14.0	0.0	17 F	21.4	25.0	15.7	10	24.2	20.5	17.1	0.0	10	24.07
	mg/L	20	34.1	/	20.0	/	40	14.6	9.9	17.5	21.4	25.9	15.7	46	21.2	29.5	17.1	9.9	46	24.07
Chloride in Water by IC		10	201	1	201	1	409	200	400	414	450	200	271	422	926	900	420	201	0.00	400.00
Chloride (CI)	mg/L	10	291	/	301	/	409	380	408	414	450	399	371	422	836	869	430	291	869	460.00
Conductivity		1.0	2520	2000	2220	272	2240	2040	2720	2460	2670	2700	2760	4020	2240	2500	2440	272	2500	2504.42
Conductivity	umhos/cm	1.0	2530	2990	2330	272	3340	2910	2720	2460	2670	2790	2760	1920	3310	3500	2410	272	3500	2594.13
Fecal Coliforms	MADN /4.00 I	2	24000	450	22	4	26	4.5	0	110	22	2	0	F0	40	420	20	2	24000	4620.47
Fecal Coliforms	MPN/100mL	3	24000	150	23	4	36	15	9	110	23	3	9	50	10	130	20	3	24000	1639.47
Hardness Calculated	- /I	0.30	007	,	05.4	,	1100	1000	024	700	704	004	1040	F20	020	1010	1120	F30	1100	022.46
Hardness (as CaCO3)	mg/L	0.30	997		954	/	1160	1000	831	726	791	994	1040	520	839	1010	1130	520	1160	922.46
Mercury Total	/1	0.000202	0.000037	0.00030	0.00020	0.000030	0.00000	0.00030	0.00000	0.000000	0.000020	0.000000	0.000000	0.0000133	0.0000050	0.0000050	0.0000057	0.000005	0.0003	0.00000
Mercury (Hg)	mg/L	0.000200	0.000027	0.00020	0.00020	0.000020	0.00020	0.00020	0.00020	0.000029	0.000020	0.000020	0.000020	0.0000122	0.0000050	0.0000050	0.0000057	0.000005	0.0002	0.00008
Nitrate in Water by IC		0.000	0.35	,	0.34	0.267	0.40	0.40	0.301	0.20	0.40	0.40	0.40	0.25	0.40	0.40	0.20	0.4	0.4	0.34
Nitrate (as N)	mg/L	0.020	0.25	/	0.31	0.267	0.40	0.10	0.381	0.20	0.40	0.40	0.40	0.25	0.40	0.40	0.20	0.1	0.4	0.31
Nitrate + Nitrite	/1	0.070	0.25	0.25	0.25	0.267	0.45	0.44	0.470	0.22	0.45	0.45	0.45	0.25	0.45	0.45	0.33	0.44	0.470	0.25
Nitrate and Nitrite as N	mg/L	0.070	0.35	0.35	0.35	0.267	0.45	0.11	0.479	0.22	0.45	0.45	0.45	0.25	0.45	0.45	0.22	0.11	0.479	0.35
Nitrite in Water by IC				,																0.10
Nitrite (as N)	mg/L	0.010	0.25	/	0.25	0.010	0.20	0.050	0.098	0.10	0.20	0.20	0.20	0.10	0.27	0.20	0.10	0.01	0.27	0.16
Oil & Grease - Gravimetric	-																			
Oil and Grease	mg/L	2.00	/	5.7	2.0	2.0	4.5	2.0	2.0	5.0	5.0	5.0	5.0	5.0	11.0	5.0	5.0	2	11	4.59
Phenol																		1		
Phenols	mg/L	0.0010	0.0055	0.0106	0.010	0.0010	0.0295	0.0049	0.0061	0.0083	0.0043	0.0074	0.0063	0.0041	0.0021	0.0016	0.0042	0.001	0.0295	0.01
Phosphorus, Total																		1		
Phosphorus (P)	mg/L	0.10	2.21	/	0.700	0.10	1.65	0.907	0.756	1.09	0.704	0.746	1.06	0.71	0.665	0.694	1.01	0.1	2.21	0.93
Sulfate in Water by IC																				
Sulfate (SO4)	mg/L	0.30	419	466	490	50.1	469	539	466	297	445	501	515	322	431	565	536	50.1	565	434.07
Total Metals by ICP-MS																				
Aluminium (Al)	mg/L	0.0050	0.305	/	0.050	0.0689	0.0934	0.0195	0.0105	0.0353	0.0425	0.0216	0.0264	0.0252	0.0283	0.0203	0.0147	0.0105	0.305	0.05
Arsenic (As)	mg/L	0.00020	0.00743	0.00651	0.0061	0.00038	0.00631	0.00766	0.00843	0.00396	0.00459	0.00596	0.00584	0.00403	0.00541	0.00753	0.00853	0.00038	0.00853	0.01
Cadmium (Cd)	mg/L	0.000010	0.000336		0.00010	0.000010	0.000199	0.000068	0.000023	0.000258	0.000082	0.000061	0.000077	0.000154	0.0000342	0.0000104	0.0000912	0.00001	0.000336	0.0001
Calcium (Ca)	mg/L	0.10	323	356	298	36.1	353	307	245	217	217	297	325	133	181	238	343	36.1	356	257.94
Chromium (Cr)	mg/L	0.0010	0.0045	0.0022	0.010	0.0010	0.0027	0.0014	0.0010	0.0015	0.0018	0.0010	0.0010	0.0010	0.00096	0.00093	0.00127	0.00093	0.01	0.0022
Cobalt (Co)	mg/L	0.00020	0.00396	/	0.0020	0.00047	0.00167	0.00136	0.00094	0.00202	0.00128	0.00096	0.00087	0.00173	0.00110	0.00095	0.00098	0.00047	0.00396	0.0014
Copper (Cu)	mg/L	0.00020	0.0434	0.0184	0.0173	0.00282	0.0274	0.0110	0.00401	0.0364	0.0164	0.00779	0.00894	0.0216	0.00573	0.00352	0.00677	0.00282	0.0434	0.02
Iron (Fe)	mg/L	0.010	3.26	0.56	1.0	0.34	1.72	0.83	0.36	5.13	1.43	0.995	1.15	1.91	0.775	0.596	1.84	0.34	5.13	1.46
Lead (Pb)	mg/L	0.000090	0.0111	0.00278	0.00217	0.000174	0.00662	0.00186	0.000456		0.00250		0.000973	0.00319	0.000650	0.000332	0.001340	0.000174	0.0111	0.0027
Magnesium (Mg)	mg/L	0.010	45.9	59.2	51.3	3.66	67.3	57.2	53.3	44.7	60.6	61.5	56.1	45.5	94.0	100	66.9	3.66	100	57.81
Manganese (Mn)	mg/L	0.00030	1.69	/	0.724	0.197	1.28	0.787	0.380	0.964	0.547	0.550	0.917	0.348	0.588	0.496	0.804	0.197	1.69	0.73
Nickel (Ni)	mg/L	0.0020	0.0131	0.011	0.020	0.0020	0.0089	0.0085	0.0062	0.0072	0.0074	0.0074	0.0063	0.0077	0.00693	0.00728	0.00672	0.002	0.02	0.01
Potassium (K)	mg/L	0.020	56.2	68.8	55.0	4.00	75.1	66.4	53.0	41.4	67.6	55.8	48.8	44.9	78.1	78.5	59.5	4	78.5	56.87
Sodium (Na)	mg/L	0.030	233	302	248	7.84	327	282	263	248	305	281	246	259	572	567	307	7.84	572	296.52
Zinc (Zn)	mg/L	0.0020	0.64	0.0464	0.055	0.0119	0.121	0.0280	0.0087	0.143	0.0436	0.0219	0.0218	0.0782	0.0265	0.0129	0.0312	0.0087	0.64	0.086
Total Organic Carbon by Combustion																				
Total Organic Carbon	mg/L	0.50	/	/	45.9	/	58.5	67	39.2	30.3	56.0	46.3	32.9	38.4	54.1	46.3	37.3	30.3	67	46.02
Total Suspended Solids																				
Total Suspended Solids	mg/L	5.0	78.0	33.0	62.0	5.0	5.0	39.0	34.0	26.0	98	143	26	48	90	68	35	5	143	52.67
рН																				
рН	pH Units	0.10	7.79	8.05	8.01	8.00	7.98	7.90	7.99	7.57	7.56	7.89	8.00	8.11	7.63	7.40	7.78	7.4	8.11	7.84
Benzene	mg/L	0.00050	0.00050	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	/	0.00050	0.00050	0.00050	0.00050	0.0005	0.0005	0.0005
Toluene	mg/L	0.0010	0.0010	/	/	/	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	/	0.0010	0.0010	0.0010	0.0010	0.001	0.001	0.001
Ethyl Benzene	mg/L	0.00050	0.00050	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	/	0.00050	0.00050	0.00050	0.00050	0.0005	0.0005	0.0005
o-Xylene	mg/L	0.00050	0.00050	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	/	0.00050	0.00050	0.00050	0.00082	0.0005	0.00082	0.0005
F1 (C6-C10)	mg/L	0.10	0.10	/	/	/	0.10	0.10	0.10	0.10	0.10	0.10	/	0.10	0.10	0.10	0.10	0.1	0.1	0.10
F2 (C10-C16)	mg/L	0.25	0.50	/	/	/	0.38	0.25	0.25	0.17	0.17	0.13	/	0.10	0.15	0.15	0.21	0.1	0.5	0.22
F3 (C16-C34)	mg/L	0.25	0.52	/	/	/	0.69	0.58	0.47	0.37	0.47	0.47	/	0.25	0.46	0.39	0.46	0.25	0.69	0.47
F4 (C34-C50)	mg/L	0.25	0.50	/	/	/	0.25	0.30	0.25	0.25	0.25	0.25	/	0.25	0.25	0.25	0.25	0.25	0.5	0.28
Total Hydrocarbons (C6-C50)	mg/L	0.44	0.87	/	/	/	1.07	0.88	0.47	0.54	0.65	0.60	/	0.38	0.62	0.54	0.67	0.38	1.07	0.66
. , ,																				

Perfection Control C	ARV-4		1		2014			2	015			21	016			2	017			Statistics	
Design	Parameter	Unit	DL	15-Jul-14		12-Sep-14	15-Jun-15			16-Sep-15	22-Jun-16			16-Sep-16	19-Jun-17			19-Sep-17	Min		Average
Cycles C	Alkalinity				Ü				Ü	·			Ü				Ū				ű
Product Control	Bicarbonate (HCO3)	mg/L	1.2	332	/	82	/	205	202	227	203	238	206	192	224	354	168	237	82.00	354.00	220.77
According Column	Carbonate (CO3)	mg/L	0.60	12	/	12	/	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	13.2	0.6	0.60		
Marchenic Includer		_			/		/														
Marche 19	• • •	mg/L	1.0	272	/	67	/	168	166	186	167	195	169	157	183	290	159	194	67.00	290.00	182.54
Benomination Organ Demand Solvey Demand Implication		/	0.20	20.0	0.4	40.5	27.0	40.6	440	45.6	47.0	25.2	47.0	467	40.4	27.0	0.60	40.40	0.60	20.00	10.61
Decided Report The Company	` '	mg/L	0.20	39.9	9.4	12.5	37.8	13.6	14.8	15.6	17.0	25.2	17.0	16.7	19.1	27.9	8.68	19.40	8.68	39.90	19.64
Contraction Fig. Fig. Contraction Fig. Fig. Contraction Fig.	,, ,	mg/l	20	28 /	50.1	60 1	67	30.2	112	7.7	15 /	34.6	6.0	6.3	27.2	215	50	5.6	5.60	215.00	19 21
Processor Proc	, ,	IIIg/L	20	20.4	30.1	09.1	07	30.2	112	7.7	13.4	34.0	0.0	0.5	27.2	213	30	3.0	3.00	213.00	40.31
Control to Marker by K		mg/l	20	17.0	/	40.2	/	16.1	77	2.0	14.0	20.6	2.4	3.5	21.9	154	43	2.2	2.00	154.00	31.84
Contention Content C		1116/ 2	20	17.0	/	40.2	/	10.1	,,	2.0	14.0	20.0	2.1	5.5	21.3	154	-13	2.2	2.00	154.00	31.04
Conductivity	,	mg/L	10	83.5	/	183	/	161	233	300	188	291	381	318	146	167	146	517	83.50	517.00	239.58
Freed Colfforms	Conductivity	<u> </u>																			
Free Confirment Mary National S. 9300 4. 9400 700	Conductivity	umhos/cm	1.0	868	570	750	809	903	1100	1350	968	1370	1640	1360	817	1090	761	1830	570.00	1830.00	1079.07
Heartest Circlated High CAD MRZ F S12 F 114 118 119 224 270 204 312 875 117 937 224 8120 22430 10436 Necroy Total Heart First Fi	Fecal Coliforms																				
Hertiment (a CASO)		MPN/100mL	3	9300	4	640	24000	930	300	150	93	430	93	240	990	2050	230	190	4.00	24000.00	2642.67
Mercary Total Mercary Tota																					
Mercary Well migst 0,0003 0,00026 0,00026 0,00026 0,00026 0,00026 0,00	, ,	mg/L	0.30	88.2	/	81.2	/	114	158	187	124	174	204	142	87.6	117	93.7	254	81.20	254.00	140.36
Mintrate in Winter by IC Nitrote in Wint		ma/l	0.00020	0.000020	0.0002	0.00020	0.00020	0.00040	0.00020	0.00020	0.000020	0.00020	0.000020	0.000020	0.0000053	0.0000050	0.000050	0.000005	0.00000	0.00040	0.00013
Nitrate (a.W)	, , , , ,	mg/L	0.00020	0.000020	0.0002	0.00020	0.00020	0.00040	0.00020	0.00020	0.000020	0.00020	0.000020	0.000020	0.0000052	0.0000050	0.000050	0.000005	0.000005	0.00040	0.00012
Nitrate in Nitries Nit		mø/I	0.020	0.502	/	0.563	0.049	0.040	0.378	0.569	0.10	0.10	0.41	0.48	0.494	0.040	0.020	1,940	0.02	1.94	0.41
Minister and Nitrifes as N might	, ,	.116/ L	3.020	3.332	/	3.333	3.0-13	3.0-10	3.570	0.505	3.13	3.10	0.71	0.70	3.137	3.0-70	3.020	1.5-70	3.02	2.5-₹	5.71
No. No. Property		mg/L	0.070	0.868	1.44	0.859	0.070	0.070	0.416	0.594	0.11	0.11	0.47	0.48	0.540	0.070	0.182	2.15	0.07	2.15	0.56
Colla Grease	Nitrite in Water by IC																				
Phenol	Nitrite (as N)	mg/L	0.010	0.367	/	0.296	0.015	0.020	0.037	0.025	0.050	0.050	0.061	0.050	0.047	0.020	0.182	0.21	0.02	0.37	0.102
Phenols mg/L 0.0010 0.0350 0.0050 0.0010 0.0014 0.0031 0.0044 0.0015 0.0085 0.0045 0.	Oil & Grease - Gravimetric																				
Phosphorus, Total Magnetists by CP-MS Color Mg/L 0.00		mg/L	2.0	0.0350	2.0	2.0	2.0	2.0	18.5	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	0.04	18.50	4.60
Phosphorus, (rol mg/s 0.10 9.55 f 6.00 5.68 6.60 3.32 4.81 5.15 4.60 4.12 2.18 3.91 6.88 8.65 0.92 0.92 9.55 5.17																					
Phosphorus (P)		mg/L	0.0010	0.0350	0.0050	0.0010	0.0018	0.0054	0.0031	0.0040	0.0015	0.0018	0.0052	0.0045	0.0040	0.022	0.010	0.003	0.00	0.04	0.007
Sulfate in Water by IC Sulfate (SO4) Total Metals by (E/MS Total Metals by (E/MS Aluminium (A) mg/L 0.0000 0.0569 / 0.218 0.00934 0.0083 0.00837 0.00837 0.00838 0.		m = /1	0.10	0.55	1	C 00	F (2)	C CO	2.22	4.01	F 1F	4.00	4.12	2.10	2.01	C 00	0.05	0.02	0.03	0.55	F 17
Sulfate (SOI) Total Metals by (ZPAM) SOI		mg/L	0.10	9.55	/	6.00	5.63	6.60	3.32	4.81	5.15	4.60	4.12	2.18	3.91	6.88	8.65	0.92	0.92	9.55	5.17
Total Metals by ICP-MS Aluminium (A) mg/L 0.0050 0.169 / 0.211 0.0934 0.128 1.18 0.255 0.0818 0.188 0.0466 0.0375 0.104 1.26 0.344 0.0259 0.03 1.26 0.29 Arsenic (As) mg/L 0.00020 0.000070 0.00		mg/I	6.0	5 15	2 18	4 98	8 97	5.60	10.40	27.2	7.2	14.6	21.6	26.7	8 78	3 87	18.6	66	2 18	66.00	15.46
Aluminium (A) mg/L 0.0050 0.169 / 0.211 0.0934 0.028 0.028 0.018 0.188 0.025 0.0043 0.0034 0.00394 0.0050 0.0064 0.00666	, ,	mg/ L	0.0	3.13	2.10	4.50	0.57	3.00	10.40	27.2	7.2	14.0	21.0	20.7	0.70	3.07	10.0	00	2.10	00.00	13.40
Arsenic (As)		mg/L	0.0050	0.169	/	0.211	0.0934	0.128	1.18	0.255	0.0818	0.138	0.0436	0.0375	0.104	1.26	0.344	0.0259	0.03	1.26	0.29
Calcium (Ca)	. /	_			0.00844																
Chromium (cr)	Cadmium (Cd)	mg/L	0.000010	0.000070	0.000079	0.000088	0.000147	0.000048	0.000214	0.000073	0.000027	0.000059	0.000010	0.000014	0.000052	0.000266	0.0000669	0.0000191	0.00	0.00	0.00008
Cobalt (Co)	Calcium (Ca)	mg/L	0.10	20.7	17	16.6	18.5	20.8	27.9	36.6		31.5	36.0	23.9	15.8	22.1	18.3	44.1	15.80	44.10	24.86
Copper (Cu)	Chromium (Cr)	mg/L	0.0010		/	0.0013						0.0010									
Figure F		_			/																
Lead P mg/L 0.00090 0.00162 0.0015 0.00159 0.00136 0.00251 0.00452 0.00161 0.000452 0.000972 0.000151 0.000188 0.000993 0.00571 0.00213 0.000142 0.00 0.01 0.0017	., , ,	_																			
Magnesium (Mg)																					
Manganese (Mn)	` '	_																			
Nickel (Ni)	, ,,	_			6.65																
Potassium (K)	. , ,	_			0.009																
Sodium (Na) mg/L 0.030 66.5 73.9 76.2 66.8 103 135 156 111 175 239 181 96.2 116 112 315 66.50 315.00 134.84																					
Total Organic Carbon by Combustion Total Organic Carbon by Combustion Total Organic Carbon by Combustion Total Suspended Solids Total Su		_																			
Total Organic Carbon mg/L 0.50 / 89.2 / 50.0 26.3 23.5 26.0 37.5 20.0 18.0 34.7 48.5 175 17.6 17.60 175.00 47.19	Zinc (Zn)	_	0.0020	0.0383	0.0402	0.0214	0.0322	0.0173	0.0554	0.0141	0.0054	0.0141	0.0023	0.0027	0.0115	0.061	0.0397		0.00	0.06	0.024
Total Suspended Solids mg/L 13 52.0 167 156 68.0 20.0 67.0 19.0 30.0 73 20 10 28 1670 272 13 10.00 1670.00 177.67 ### PH Units 0.10 7.51 8.96 6.77 8.11 7.35 7.22 7.50 7.16 7.24 7.32 7.41 7.49 6.76 8.82 7.18 6.76 8.96 7.52 ### Benzene mg/L 0.00050 0.00050 / / / 0.00050 0.00050 / 0.00050 / 0.00050 / 0.00050 / 0.00050	Ů,																				
Total Suspended Solids mg/L 13 52.0 167 156 68.0 20.0 67.0 19.0 30.0 73 20 10 28 1670 272 13 10.00 1670.00 177.67 PH	Ü	mg/L	0.50	/	/	89.2	/	50.0	26.3	23.5	26.0	37.5	20.0	18.0	34.7	48.5	175	17.6	17.60	175.00	47.19
pH pH units 0.10 7.51 8.96 6.77 8.11 7.35 7.22 7.50 7.16 7.24 7.32 7.41 7.49 6.76 8.82 7.18 6.76 8.96 7.52 Benzene mg/L 0.00050 0.00050 / / 0.00050 / 0.00050 / 0.00050 0.00050 0.0005	•																				
pH pH Units 0.10 7.51 8.96 6.77 8.11 7.35 7.22 7.50 7.16 7.24 7.32 7.41 7.49 6.76 8.82 7.18 6.76 8.96 7.52 Benzene mg/L 0.00050 0.00050 / / 0.00050 / 0.00050 0.00050 0.00050 0.0005 0.00050	•	mg/L	13	52.0	167	156	68.0	20.0	67.0	19.0	30.0	73	20	10	28	1670	272	13	10.00	1670.00	177.67
Benzene mg/L 0.00050 0.00050 / / 0.00050 0.00050 / 0.00050		nH Haita	0.10	7.51	9.00	6 77	0.11	7.25	7.22	7.50	7.16	7.24	7.22	7.44	7.40	6.70	0.03	7.10	6.70	9.00	7.53
Toluene mg/L 0.0010 0.0010 / / / 0.0010 0.0029 / 0.0010 / 0.0010 / 0.0010 0.0110 0.0187 0.001 0.019 0.0035 Ethyl Benzene mg/L 0.00050 0.00050 / / 0.00050 / 0.00050 / 0.00050 / 0.00050 / 0.00050 / 0.00050 / 0.00050 0.00050 0.00050 0.00050 0.00050 O-Xylene mg/L 0.00050 0.00050 / / 0.00050 / 0.00050 / 0.00050 / 0.00050 0.00050 0.00050 0.00050 0.00050 F1 (C6-C10) mg/L 0.10 0.1 / / / 0.10 0.10 / 0.10 / 0.10 / 0.10 / 0.10 0.10	·				8.96	0.77	8.11			7.50 /								7.18			
Ethyl Benzene mg/L 0.00050 0.00050 / / 0.00050		_			/	/	/			/											
o-Xylene mg/L 0.00050 0.00050 / / 0.00050 0.00050 / 0.00050 0.0005 0.0005 0.0005 0.0005 0.0005 0.00050 0.00050 0.00050 0.00050 0.0005		_			/	/	/			/		· ·		/							
F1 (C6-C10) mg/L 0.10 0.1 / / 0.10 0.10 / 0.10 0.20 0.20 F3 (C16-C34) mg/L 0.25 4.09 / / / 0.71 0.65 / 0.28 / 0.25 / 0.34 1.72 2.85 0.25 4.09 1.36 F4 (C34-C50) mg/L 0.25 1.44 / / / 0.33 / 0.25 / 0.25 0.64 0.92 0.25 1.44 0.55	*	_			/	/	/			/		· ·		/							
F2 (C10-C16) mg/L 0.25 0.5 / / / 0.25 0.25 / 0.10 / 0.10 0.16 0.16 0.10 0.50 0.20 F3 (C16-C34) mg/L 0.25 4.09 / / / 0.65 / 0.28 / 0.25 / 0.34 1.72 2.85 0.25 4.09 1.36 F4 (C34-C50) mg/L 0.25 1.44 / / / 0.33 / 0.25 / 0.25 0.64 0.92 0.25 1.44 0.55	,				/	/	/			/		/		/							
F3 (C16-C34) mg/L 0.25 4.09 / / / 0.71 0.65 / 0.28 / 0.25 / 0.34 1.72 2.85 0.25 4.09 1.36 F4 (C34-C50) mg/L 0.25 1.44 / / / 0.31 0.33 / 0.25 / 0.25 / 0.25 / 0.25 0.64 0.92 0.25 1.44 0.55	· '				/	/	/			/		/		/							
	F3 (C16-C34)	mg/L	0.25	4.09	/	/	/	0.71	0.65	/	0.28	/	0.25	/	0.34				0.25	4.09	1.36
Total Hydrocarbons (C6-C50) mg/L 0.44 5.53 / / 1.02 0.98 / 0.38 / 0.38 2.53 3.93 0.38 5.53 1.89					/	/	/			/		/		/							
	Total Hydrocarbons (C6-C50)	mg/L	0.44	5.53	/	/	/	1.02	0.98	/	0.38	/	0.38	/	0.38	2.53	3.93		0.38	5.53	1.89

ARV-5				2014			2	015			20	016			2	.017			Statistics	
Parameter	Unit	DL	15-Jul-14	01-Aug-14	12-Sep-14	15-Jun-15	21-Jul-15	18-Aug-15	16-Sep-15	22-Jun-16	12-Jul-16	25-Aug-16	16-Sep-16	19-Jun-17	12-Jul-17	10-Aug-17	19-Sep-17	Min	Max	Average
Alkalinity																				
Bicarbonate (HCO3)	mg/L	1.2	50	/	93	/	93.9	133	87.0	38.4	73.2	107	78.2	78.7	135	135	42.5	38.40	135.00	88.07
Carbonate (CO3)	mg/L	0.60	12.00	/	12.00	/	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	12.00	2.35
Hydroxide (OH)	mg/L	0.34	6.80	/	6.80	/	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	6.80	1.33
Total (as CaCO3)	mg/L	1.0	41	/	76	/	77.0	109	71.3	31.5	60.0	87.7	64.1	64.5	110	110	34.8	31.50	110.00	72.07
Ammonia by Colour	<i>'</i>																		2.22	
Total (as N)	mg/L	0.20	0.085	0.01	0.01	0.015	0.021	0.037	0.020	0.01	0.029	0.013	0.054	0.020	0.025	0.025	0.010	0.01	0.09	0.03
Biochemical Oxygen Demand (BOD)	ma/l	6.0	6.0	6.0	6.0	2.0	2.0	2.0	2.0	2.3	3.1	2.0	3.0	2.0	2.0	2.3	2	2.00	6.00	2.98
Biochemical Oxygen Demand Carbonaceous BOD	mg/L	0.0	0.0	0.0	0.0	2.0	2.0	2.0	2.0	2.5	5.1	2.0	3.0	2.0	2.0	2.3	2	2.00	0.00	2.30
BOD Carbonaceous	mg/L	6.0	6.0	/	6.0	1	2.0	2.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.00	6.00	2.69
Chloride in Water by IC	1116/ L	0.0	0.0	/	0.0	/	2.0	2.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.00	0:00	2.03
Chloride (CI)	mg/L	10	513	/	311	/	901	517	361	94.5	846	290	185	746	1300	868	277	94.50	1300.00	554.58
Conductivity	5.																			
Conductivity	umhos/cm	1.0	1730	2700	1100	305	2990	1920	1280	386	2670	1130	735	2200	3890	2790	1010	305.00	3890.00	1789.07
Fecal Coliforms																				
Fecal Coliforms	MPN/100mL	3	9	43	3	4	4	7500	4	3	3	15	43	10	10	60	10	3.00	7500.00	514.73
Hardness Calculated																				
Hardness (as CaCO3)	mg/L	0.30	373	/	162	/	466	273.00	214	64.3	399	185	120	390	744	412	204	64.30	744.00	308.18
Mercury Total		0.0000	0.00000	0.6333	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.000000	0.000000	0.000000	0.000000	0.00000	0.00000	0.00000
Mercury (Hg)	mg/L	0.00020	0.000020	0.00020	0.000024	0.000020	0.000020	0.00020	0.00020	0.000020	0.000020	0.000020	0.000020	0.0000050	0.0000050	0.0000050	0.0000050	0.000005	0.00020	0.00005
Nitrate in Water by IC	ma/1	0.020	0.25	1	0.050	0.020	0.40	0.10	0.020	0.020	0.40	0.040	0.020	0.20	0.40	0.20	0.04	0.02	0.40	0.15
Nitrate (as N) Nitrate + Nitrite	mg/L	0.020	0.25	/	0.050	0.020	0.40	0.10	0.020	0.020	0.40	0.040	0.020	0.20	0.40	0.20	0.04	0.02	0.40	0.15
Nitrate + Nitrite Nitrate and Nitrite as N	mg/L	0.070	0.35	0.35	0.071	0.070	0.45	0.11	0.070	0.070	0.45	0.070	0.070	0.22	0.45	0.22	0.07	0.07	0.45	0.21
Nitrite in Water by IC	1116/ L	0.070	0.55	0.55	0.071	0.070	0.43	0.11	0.070	0.070	0.43	0.070	0.070	0.22	0.43	0.22	0.07	0.07	0.45	0.21
Nitrite (as N)	mg/L	0.010	0.25	/	0.050	0.010	0.20	0.050	0.010	0.010	0.20	0.020	0.010	0.10	0.20	0.10	0.02	0.01	0.25	0.09
Oil & Grease - Gravimetric	G,			,																
Oil and Grease	mg/L	5.0	/	2.0	2.0	2.0	2.0	2.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.00	5.00	3.71
Phenol																				
Phenols	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0138	0.0027	0.0013	0.001	0.0038	0.0033	0.0014	0.0033	0.0010	0.0010	0.0010	0.0010	0.014	0.0025
Phosphorus, Total																				
Phosphorus (P)	mg/L	0.010	0.028	/	0.050	0.10	0.044	0.043	0.034	0.06	0.170	0.045	0.137	0.0038	0.043	0.135	0.013	0.0038	0.17	0.065
Sulfate in Water by IC	/1	6.0	20.5	1.0	0.42	7.40	F2.0	40.0	7.42	7.54	20.4	4.00	11.0	1.1.1	110	20.7	00.4	4.00	110.00	20.24
Sulfate (SO4)	mg/L	6.0	30.5	16	8.42	7.18	53.0	10.0	7.13	7.51	30.4	4.90	11.8	14.4	119	39.7	80.1	4.90	119.00	29.34
Total Metals by ICP-MS Aluminium (Al)	mg/L	0.0050	0.282	1	0.0319	0.0124	0.0779	0.0536	0.0471	0.352	0.463	0.326	0.0237	0.0576	0.0220	0.0744	0.0096	0.01	0.46	0.13
Arsenic (As)	mg/L	0.00020	0.00051	0.00087	0.00047	0.0020	0.00050	0.00076	0.00057	0.00051	0.403	0.00062	0.0036	0.00068	0.00220	0.00090	0.0030	0.0002	0.0009	0.0006
Cadmium (Cd)	mg/L	0.000010	0.000074	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000016	0.000010	0.000010	0.000010	0.0000050	0.0000050	0.0000050	0.000005	0.000074	0.000014
Calcium (Ca)	mg/L	0.10	78	53.4	28.9	8.98	47.2	37.7	39.5	11.7	47.0	35.0	22.5	40.6	79.9	55.1	40.6	8.98	79.90	41.74
Chromium (Cr)	mg/L	0.0010	0.0016	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0014	0.0010	0.0010	0.0010	0.00022	0.00047	0.00014	0.0001	0.0016	0.0009
Cobalt (Co)	mg/L	0.00020	0.00021	/	0.00020	0.00020	0.00020	0.00033	0.00020	0.00040	0.00057	0.00035	0.00020	0.00030	0.00021	0.00023	0.0001	0.0001	0.0006	0.0003
Copper (Cu)	mg/L	0.00020	0.00095	0.00056	0.00120	0.00054	0.00043	0.00032	0.00048	0.00123	0.00152	0.00097	0.00040	0.00067	0.00058	<0.00050	0.00058	0.0003	0.0015	0.0007
Iron (Fe)	mg/L	0.010	1.16	3.16	0.96	0.33	1.83	4.19	3.61	3.75	7.56	1.45	0.882	3.45	1.17	4.25	0.207	0.21	7.56	2.53
Lead (Pb)	mg/L	0.000090	0.000504		_			-	0.000090	0.000439	0.000611	0.000358	0.000090	0.000091	0.000050	0.000164	0.000064	0.0001	0.0006	0.0002
Magnesium (Mg)	mg/L	0.010	43.3	61	21.8	6.27	84.5	43.4	28.0	8.54	68.5	23.7	15.6	70.0	132	66.6	25	6.27	132.00	46.55
Manganese (Mn)	mg/L	0.00030	0.188	/	0.0463	0.00699	0.0366	0.253	0.0645	0.144	0.26	0.0629	0.0253	0.226	0.137	0.214	0.0322	0.01	0.26	0.12
Nickel (Ni)	mg/L	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.00050	0.00060	0.00058	0.0005	0.0020	0.0017
Potassium (K) Sodium (Na)	mg/L	0.020	9.79 246	16.7 419	6.04 164	2.90 41.6	16.3 486	12.6 287	8.10 190	3.33 50.3	14.0 430	7.13 149	6.27 95.2	14.5 442	23.6 765	16.2 415	7.72 140	2.90 41.60	23.60 765.00	11.01 288.01
Zinc (Zn)	mg/L mg/L	0.0020	0.417	0.0034	0.0035	0.0077	0.0020	0.0033	0.0037	0.0098	0.0113	0.0056	0.0032	0.0050	0.0031	0.0030	0.0084	0.0020	0.42	0.033
Total Organic Carbon by Combustion	IIIg/L	0.0020	0.417	0.0054	0.0033	0.0077	0.0020	0.0033	0.0037	0.0036	0.0113	0.0030	0.0032	0.0030	0.0031	0.0030	0.0004	0.0020	J.42	0.033
Total Organic Carbon Total Organic Carbon	mg/L	0.50	/	/	9.0	1	9.1	13.2	8.8	7.46	7.52	10.8	8.46	8.95	9.84	12.3	7.23	7.23	13.20	9.39
Total Suspended Solids		0.00	,	,	5.0	,	J.1	20.2	0.5			20.0	00	0.55	0.01		3	3	_50	3.03
Total Suspended Solids	mg/L	13	6.0	20.0	6.0	5.0	8.0	13.0	5.0	124	53.8	69.0	7.0	20	31.0	32.0	5.0	5.00	124.00	26.99
pH																				
pH	pH Units	0.10	7.04	8.01	7.63	7.71	7.90	7.74	7.25	7.02	7.53	7.65	7.63	7.07	8.05	7.45	6.96	6.96	8.05	7.51
Benzene	mg/L	0.00050	0.00050	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	/	0.00050	0.00050	0.00050	0.00050	0.0005	0.0005	0.0005
Toluene	mg/L	0.0010	0.0010	/	/	/	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	/	0.0010	0.0010	0.0010	0.0010	0.001	0.001	0.001
Ethyl Benzene	mg/L	0.00050	0.00050	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	/	0.00050	0.00050	0.00050	0.00050	0.0005	0.0005	0.0005
o-Xylene	mg/L	0.00050	0.00050	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	/	0.00050	0.00050	0.00050	0.00050	0.0005	0.0005	0.0005
F1 (C6-C10)	mg/L	0.10	0.10 0.50	/	/	/	0.10	0.10	0.10	0.10	0.10	0.10	/	0.10	0.10	0.10	0.10	0.10	0.10 0.50	0.10 0.18
F2 (C10-C16) F3 (C16-C34)	mg/L	0.25	0.50	/	/	1	0.25 0.25	0.25 0.25	0.25 0.25	0.10 0.25	0.10 0.25	0.10 0.25	/	0.10 0.25	0.10 0.25	0.10 0.25	0.10 0.25	0.10 0.25	0.50	0.18
F4 (C34-C50)	mg/L mg/L	0.25	0.50	/	/	/	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	0.50	0.27
Total Hydrocarbons (C6-C50)	mg/L	0.23	0.87	/	/	/	0.25	0.25	0.23	0.23	0.23	0.23	/	0.23	0.23	0.23	0.23	0.23	0.30	0.27
Total Hydrocarbons (Co-C50)	mg/L	0.44	0.07	/	/	1	0.44	0.44	0.44	0.30	0.36	0.36	/	0.36	0.36	0.36	0.30	0.30	0.07	0.44

ARV-6				2014			2	2015			2	016			2	2017			Statistics	
Parameter	Unit	DL	15-Jul-14	01-Aug-14	12-Sep-14	15-Jun-15	21-Jul-15	18-Aug-15	16-Sep-15	22-Jun-16	12-Jul-16	25-Aug-16	16-Sep-16	19-Jun-17	12-Jul-17	10-Aug-17	19-Sep-17	Min	Max	Average
Alkalinity																				
Bicarbonate (HCO3)	mg/L	1.2	90	/	126	/	138	128	118	31.0	112	118	97.7	76.9	94.6	/	/	31.00	138.00	102.75
Carbonate (CO3)	mg/L	0.60	12	/	12	/	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	/	/	0.60	12.00	2.67
Hydroxide (OH)	mg/L	0.34	6.8	/	6.8	/	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	/	/	0.34	6.80	1.51
Total (as CaCO3)	mg/L	1.0	74	/	103	/	113	105	96.8	25.4	91.5	97.0	80.1	63.0	77.5	/	/	25.40	113.00	84.21
Ammonia by Colour	/1	0.20	0.040	0.200	0.075	,	0.056	0.000	0.405	0.040	0.453	0.420	0.00	0.070	0.054	1	1	0.04	0.00	0.26
Total (as N)	mg/L	0.20	0.010	0.289	0.075	/	0.256	0.330	0.435	0.010	0.452	0.138	0.83	0.070	0.251	/	/	0.01	0.83	0.26
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	mg/l	6.0	6.0	29.3	6.0	70.1	6.3	8.0	6.0	3.1	7.3	5.1	5.1	8.2	2.1	1	1	2.10	70.10	12.51
Carbonaceous BOD	mg/L	0.0	0.0	25.5	0.0	70.1	0.5	6.0	0.0	5.1	7.5	3.1	3.1	0.2	2.1	/	/	2.10	70.10	12.31
BOD Carbonaceous	mg/L	6.0	6.0	1	6.0	1	5.9	3.1	2.0	2.3	4.7	2.0	2.2	6.6	2.0	1	1	2.00	6.60	3.89
Chloride in Water by IC	1116/ L	0.0	0.0	/	0.0	/	3.3	5.1	2.0	2.3	4.7	2.0	2.2	0.0	2.0	/	1	2.00	0.00	3.03
Chloride (CI)	mg/L	10	149	/	155	/	45.1	99.8	176	112	159	267	215	66.9	196	/	/	45.10	267.00	149.16
Conductivity	S,			,		,										,	,			
Conductivity	umhos/cm	1.0	655	749	669	198	691	693	712	427	685	1070	834	333	737	/	/	198.00	1070.00	650.23
Fecal Coliforms																				
Fecal Coliforms	MPN/100mL	3	3	23	3	4	3	3	430	3	3	3	3	10	10	/	/	3.00	430.00	38.54
Hardness Calculated																				
Hardness (as CaCO3)	mg/L	0.30	167	/	149	/	205	152	172	139	205	253	221	99.6	209	/	/	99.60	253.00	179.24
Mercury Total																				
Mercury (Hg)	mg/L	0.00020	0.000020	0.00020	0.000020	0.00020	0.00020	0.00020	0.00040	0.000020	0.00020	0.000020	0.000020	0.0000050	0.0000050	/	/	0.000005	0.00040	0.00012
Nitrate in Water by IC																				
Nitrate (as N)	mg/L	0.40	0.050	/	0.050	0.030	0.020	0.020	0.020	0.020	0.020	0.159	0.040	0.020	0.020			0.02	0.16	0.04
Nitrate + Nitrite	/1	0.45	0.074	0.074	0.074	0.070	0.070	0.070	0.070	0.070	0.070	0.450	0.070	0.070	0.070			0.07	0.10	0.00
Nitrate and Nitrite as N	mg/L	0.45	0.071	0.071	0.071	0.070	0.070	0.070	0.070	0.070	0.070	0.159	0.070	0.070	0.070	/	/	0.07	0.16	0.08
Nitrite in Water by IC Nitrite (as N)	mg/L	0.20	0.050	1	0.050	0.010	0.010	0.010	0.010	0.010	0.010	0.020	0.020	0.010	0.010	1	1	0.01	0.05	0.02
Oil & Grease - Gravimetric	IIIg/L	0.20	0.030	/	0.030	0.010	0.010	0.010	0.010	0.010	0.010	0.020	0.020	0.010	0.010	/	/	0.01	0.03	0.02
Oil and Grease	mg/L	5.0	1	2.0	2.0	2.0	2.0	2.0	4.4	5.0	33.0	5.0	5.0	5.0	5.0	1	1	2.00	33.00	6.03
Phenol	1116/ 2	5.0	/	2.0	2.0	2.0	2.0	2.0	4.4	3.0	33.0	3.0	5.0	5.0	5.0	1	1	2.00	33.00	0.03
Phenols	mg/L	0.0010	0.0010	0.0193	0.0013	0.0028	0.0102	0.0055	0.0027	0.0031	0.0036	0.0037	0.0030	0.0141	0.0018	/	/	0.0010	0.019	0.006
Phosphorus, Total	8/ =	0.0020	0.0020	0.0200		0.000	0.0202								0.0020	,	,	0.0020	0.020	
Phosphorus (P)	mg/L	0.010	0.069	/	0.059	0.10	0.407	0.063	0.433	0.122	0.119	0.305	0.043	0.065	0.082	/	/	0.04	0.43	0.16
Sulfate in Water by IC																				
Sulfate (SO4)	mg/L	6.0	8.83	0.50	0.50	1.75	2.64	0.30	1.11	0.46	0.30	3.22	0.60	0.30	0.81	/	/	0.30	8.83	1.64
Total Metals by ICP-MS																				
Aluminium (AI)	mg/L	0.0050	0.237	/	0.0369	0.680	1.36	0.0310	0.627	0.120	0.995	1.69	0.0246	0.0867	0.245	/	/	0.025	1.690	0.511
Arsenic (As)	mg/L	0.00020	0.00052	0.00584	0.00081	0.00036	0.00319	0.00082	0.00137	0.00052	0.00156	0.00127	0.00101	0.00065	0.00102	/	/	0.00036	0.00584	0.00146
Cadmium (Cd)	mg/L	0.000010	0.000019	0.000032	0.000010	0.000047	0.000020	0.000010	0.000017	0.000032	0.000089	0.000091	0.000010	0.000010	0.0000054	/	/	0.000005	0.000091	0.000030
Calcium (Ca)	mg/L	0.10	43.9	44.9	37.6	17.4	52.6	39.6	47.0	45.8	58.2	74.2	64.5	28.7	56.9	/	/	17.40	74.20	47.02
Chromium (Cr)	mg/L	0.0010	0.317	0.0098	0.0010	0.0010	0.0048	0.0011	0.0035	0.0010	0.0032	0.0036	0.0010	0.0010	0.00130	/	/	0.0010	0.32	0.027
Cobalt (Co)	mg/L	0.00020	0.00149	0.00561	0.00165	0.00141	0.00480	0.00238	0.00265	0.00194	0.00384	0.00361	0.00092	0.00209	0.00201	/	/	0.0009	0.0048	0.0024
Copper (Cu) Iron (Fe)	mg/L	0.00020	0.00098 7.52	0.00561	0.00086 19.0	0.00266 2.81	0.00318	0.00033 31.2	0.00230 54.1	0.00114 6.73	0.00601 59.7	0.00403	0.00028	0.00073 15.5	0.00142 24.7	1	1	0.0003 2.81	0.0060 147.00	0.0023 41.46
Lead (Pb)	mg/L	0.000090		0.00172	0.000115	0.00101	0.00131	0.000090	0.000875	0.000220	0.00153	0.00198	0.000090	0.000197	0.000352	1	1	0.00009	0.00198	0.00076
Magnesium (Mg)	mg/L mg/L	0.00090	14.0	15.7	13.5	4.13	17.8	13.0	13.3	6.08	14.6	16.4	14.5	6.76	16.1	1	1	4.13	17.80	12.76
Manganese (Mn)	mg/L	0.00030	2.14	/	1.91	1.07	3.89	2.64	2.49	1.14	2.85	2.48	2.02	2.32	2.78	1	1	1.07	3.89	2.31
Nickel (Ni)	mg/L	0.0020	0.0020	0.0043	0.0020	0.0020	0.0034	0.0020	0.0030	0.0020	0.0026	0.0039	0.0020	0.0020	0.00126	1	1	0.00126	0.00430	0.00250
Potassium (K)	mg/L	0.020	6.91	7.3	5.52	3.23	6.88	4.62	5.80	3.72	6.67	8.30	6.34	3.99	5.36	1	1	3.23	8.30	5.74
Sodium (Na)	mg/L	0.030	68.7	79.9	64.7	10.0	70.3	66.7	71.1	10.4	66.4	71.1	54.2	23.8	82.7	/	/	10.00	82.70	56.92
Zinc (Zn)	mg/L	0.0020	0.0656	0.302	0.0227	0.0523	0.0251	0.0020	0.0251	0.0391	0.0335	0.0433	0.0031	0.0050	0.0075	/	/	0.0020	0.30	0.048
Total Organic Carbon by Combustion																				
Total Organic Carbon	mg/L	0.50	/	/	1.0	/	28.2	14.3	25.7	8.54	16.0	11.0	8.61	14.6	11.2	1	1	1.00	28.20	13.92
Total Suspended Solids																				
Total Suspended Solids	mg/L	13	34.0	268	102	18.0	105	61.0	1500	23.0	144	228	58	36	41.0	/	/	18.00	1500.00	201.38
рН																				
pH	pH Units	0.10	7.21	6.82	7.07	7.67	7.05	7.05	6.98	6.56	6.45	6.87	6.61	6.95	6.64	/	/	6.45	7.67	6.92
Benzene	mg/L	0.00050	_	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	/	0.00050	0.00050	/	/	0.0005	0.0005	0.0005
Toluene	mg/L	0.0010	0.0010	/	/	/	0.0042	0.0021	0.0010	0.0030	0.0023	0.0010	/	0.0035	0.0010	/	/	0.0010	0.0042	0.0021
Ethyl Benzene	mg/L	0.00050	0.00050	/	/	/	0.00051	0.00050	0.00050	0.00240	0.00077	0.00050	/	0.00050	0.00050	/	/	0.0005	0.0024	0.0007
o-Xylene	mg/L	0.00050	0.00050	/	/	/	0.00095	0.00050	0.00050	0.00614	0.00216	0.00098	/	0.00050	0.00050	1	1	0.001	0.006	0.0014
F1 (C6-C10) F2 (C10-C16)	mg/L	0.10	0.10 0.50	/	/	/	0.10 0.25	0.10 0.25	0.10 0.25	0.10 0.12	0.10 2.47	0.10 0.10	/	0.10 0.10	0.10 0.17	1	1	0.10 0.10	0.10 2.47	0.10 0.47
F3 (C16-C34)	mg/L mg/L	0.25	0.50	/	/	/	0.25	0.25	1.77	0.12	13.9	0.10	1	0.10	1.25	1	1	0.10	13.90	2.19
F4 (C34-C50)	mg/L	0.25	0.50	/	/	/	0.37	0.25	0.61	0.09	0.72	0.32	1	0.25	0.25	1	1	0.25	0.72	0.37
Total Hydrocarbons (C6-C50)	mg/L	0.23	0.87	/	/	/	0.23	0.23	2.38	0.23	17.2	0.23	1	0.38	1.41	1	1	0.38	17.20	2.72
Total Hydrocarbons (CO-CSO)	IIIB/ L	0.44	0.07	1	1	/	0.57	U. T**	2.30	0.01	17.2	0.50	1	0.50	1.71			0.50	17.20	2.12

Arviat
ARV-Active Sewage Lagoon

ARV-Active Sewage Lagoon		ĺ	2017		Statistics	
Parameter	Unit	DL	10-Aug-17	Min	Max	Average
Alkalinity						
Bicarbonate (HCO3)	mg/L	1.2	391	391	391	391
Carbonate (CO3)	mg/L	0.60	0.60	0.60	0.60	0.60
Hydroxide (OH)	mg/L	0.34	0.34	0.34	0.34	0.34
Total (as CaCO3)	mg/L	1.0	321	321	321	321
Ammonia by Colour	ma/l	0.20	76	76	76	76
Total (as N) Biochemical Oxygen Demand (BOD)	mg/L	0.20	76	76	76	76
Biochemical Oxygen Demand	mg/L	6.0	298.4	298.4	298.4	298.4
Carbonaceous BOD	6/ =	0.0	23011	25011	23011	25011
BOD Carbonaceous	mg/L	6.0	182	182	182	182
Chloride in Water by IC						
Chloride (CI)	mg/L	10	59.5	59.5	59.5	59.5
Conductivity						
Conductivity	umhos/cm	1.0	911	911	911	911
Fecal Coliforms			2.4200	24200	24200	2 4 2 2 2
Fecal Coliforms	MPN/100mL	3	24200	24200	24200	24200
Hardness (as CaCO2)	ma/l	0.30	42.4	42.4	42.4	42.4
Hardness (as CaCO3) Mercury Total	mg/L	0.30	42.4	42.4	42.4	42.4
Mercury (Hg)	mg/L	0.00020	0.000017	0.000017	0.000017	0.000017
Nitrate in Water by IC	IIIB/ L	0.00020	0.000017	0.000017	0.000017	0.000017
Nitrate (as N)	mg/L	0.40	0.040	0.040	0.040	0.040
Nitrate + Nitrite	G,					
Nitrate and Nitrite as N	mg/L	0.45	0.070	0.070	0.070	0.070
Nitrite in Water by IC						
Nitrite (as N)	mg/L	0.20	0.020	0.020	0.020	0.020
Oil & Grease - Gravimetric						
Oil and Grease	mg/L	5.0	43.9	43.9	43.9	43.9
Phenol	/1	0.0040	4.40	4.40	4.40	1.10
Phenols	mg/L	0.0010	1.19	1.19	1.19	1.19
Phosphorus, Total Phosphorus (P)	mg/L	0.010	9.60	9.60	9.60	9.60
Sulfate in Water by IC	IIIg/L	0.010	9.00	9.00	9.00	9.00
Sulfate (SO4)	mg/L	6.0	0.60	0.60	0.60	0.60
Total Metals by ICP-MS	G,					
Aluminium (Al)	mg/L	0.0050	0.711	0.711	0.711	0.711
Arsenic (As)	mg/L	0.00020	0.00069	0.00069	0.00069	0.00069
Cadmium (Cd)	mg/L	0.000010	0.000159	0.000159	0.000159	0.000159
Calcium (Ca)	mg/L	0.10	9.28	9.28	9.28	9.28
Chromium (Cr)	mg/L	0.0010	0.00157	0.00157	0.00157	0.00157
Cobalt (Co)	mg/L	0.00020	0.00076	0.00076	0.00076	0.00076
Copper (Cu) Iron (Fe)	mg/L	0.00020	0.144 0.737	0.144	0.144	0.144
Lead (Pb)	mg/L mg/L	0.010	0.737	0.737 0.00224	0.737 0.00224	0.737 0.00224
Magnesium (Mg)	mg/L	0.010	4.67	4.67	4.67	4.67
Manganese (Mn)	mg/L	0.00030	0.0573	0.0573	0.0573	0.0573
Nickel (Ni)	mg/L	0.0020	0.00377	0.00377	0.00377	0.00377
Potassium (K)	mg/L	0.020	26.4	26.4	26.4	26.4
Sodium (Na)	mg/L	0.030	54.5	54.5	54.5	54.5
Zinc (Zn)	mg/L	0.0020	0.136	0.136	0.136	0.136
Total Organic Carbon by Combustion						
Total Organic Carbon	mg/L	0.50	15.3	15.3	15.3	15.3
Total Suspended Solids		4.5		6:		6:
Total Suspended Solids	mg/L	13	64	64	64	64
pH	all llaite	0.10	7.40	7.40	7.40	7.40
pH Benzene	pH Units mg/L	0.10	7.40	7.40 0	7.40 0	7.40 0
Toluene	mg/L	0.00030	/	0	0	0
Ethyl Benzene	mg/L	0.00050	1	0	0	0
o-Xylene	mg/L	0.00050	/	0	0	0
F1 (C6-C10)	mg/L	0.10	/	0	0	0
F2 (C10-C16)	mg/L	0.25	1	0	0	0
F3 (C16-C34)	mg/L	0.25	1	0	0	0
F4 (C34-C50)	mg/L	0.25	/	0	0	0
Total Hydrocarbons (C6-C50)	mg/L	0.44	/	0	0	0
			*ROD is an a	nnroximation	on due to n	n analysis n

^{*}BOD is an approximation due to no analysis performed. Approximation done by an average ratio between CBOD and BOD.



Arviat
ARV-Old Sewage Lagoon

AKV-Old Sewage Lagoon			2015	2016	2017		Statistics	
Parameter	Unit	DL	21-Jun-15	22-Jun-16	10-Aug-17	Min	Max	Average
Alkalinity								
Bicarbonate (HCO3)	mg/L	1.2	/	/	69.9	69.9	69.9	69.9
Carbonate (CO3)	mg/L	0.60	/	/	5.04	5.04	5.04	5.04
Hydroxide (OH)	mg/L	0.34	/	/	0.3	0.34	0.34	0.34
Total (as CaCO3)	mg/L	1.0	/	/	65.7	65.7	65.7	65.7
Ammonia by Colour								
Total (as N)	mg/L	0.20	0.278	5	0.54	0.278	5.0	1.9
Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	mg/L	6.0	6.6	12	2.8	2.8	12.0	7.1
Carbonaceous BOD	<i>'</i>		,	,				
BOD Carbonaceous	mg/L	6.0	/	/	2.0	2.0	2.0	2.0
Chloride in Water by IC	/-	4.0	,	,	57.4	53.4	57.4	57.4
Chloride (Cl)	mg/L	10	/	/	57.1	57.1	57.1	57.1
Conductivity		4.0	200	274	204	200.0	274.0	225 7
Conductivity	umhos/cm	1.0	299	374	304	299.0	374.0	325.7
Fecal Coliforms	1400	2	2		20	2.0	20.0	12.2
Fecal Coliforms	MPN/100mL	3	3	4	30	3.0	30.0	12.3
Hardness Calculated	6		,	,				
Hardness (as CaCO3)	mg/L	0.30	/	/	61.1	61.1	61.1	61.1
Mercury Total		0.635	0.633	0.000	0.0000	0.655	0.000	0.000
Mercury (Hg)	mg/L	0.00020	0.00020	0.000022	0.0000091	0.000009	0.000200	0.000077
Nitrate in Water by IC								
Nitrate (as N)	mg/L	0.40	/	/	0.111	0.111	0.111	0.111
Nitrate + Nitrite								
Nitrate and Nitrite as N	mg/L	0.45	0.012	0.507	0.178	0.0120	0.5070	0.2323
Nitrite in Water by IC								
Nitrite (as N)	mg/L	0.20	/	/	0.067	0.067	0.067	0.067
Oil & Grease - Gravimetric								
Oil and Grease	mg/L	5.0	2.0	5.0	5.0	2.0	5.0	4.0
Phenol								
Phenols	mg/L	0.0010	0.0010	0.0011	0.0010	0.0010	0.0011	0.0010
Phosphorus, Total								
Phosphorus (P)	mg/L	0.010	1.19	1.63	2.03	1.19	2.03	1.62
Sulfate in Water by IC								
Sulfate (SO4)	mg/L	6.0	3.37	2.67	1.07	1.07	3.37	2.37
Total Metals by ICP-MS								
Aluminium (Al)	mg/L	0.0050	/	/	0.233	0.233	0.233	0.233
Arsenic (As)	mg/L	0.00020	0.00159	0.00168	0.00188	0.0016	0.00188	0.00172
Cadmium (Cd)	mg/L	0.000010	0.000017	0.000023	0.0000050	0.000005	0.000023	0.000015
Calcium (Ca)	mg/L	0.10	11.3	16.8	13.9	11.3	16.8	14.0
Chromium (Cr)	mg/L	0.0010	0.0010	0.0010	0.00038	0.00038	0.00100	0.00079
Cobalt (Co)	mg/L	0.00020	/	/	0.00037	0.00037	0.00037	0.00037
Copper (Cu)	mg/L	0.00020	0.00589	0.00737	0.00830	0.00589	0.00830	0.00719
Iron (Fe)	mg/L	0.010	0.31	0.899	1.73	0.31	1.73	0.98
Lead (Pb)	mg/L	0.000090	0.000252	0.000423	0.000823	0.000252	0.000823	0.000499
Magnesium (Mg)	mg/L	0.010	4.48	7.04	6.41	4.48	7.04	5.98
Manganese (Mn)	mg/L	0.00030	/	/	0.0695	0.0695	0.0695	0.0695
Nickel (Ni)	mg/L	0.0020	0.002	0.0027	0.00200	0.0020	0.0027	0.00223
Potassium (K)	mg/L	0.020	7.52	10	4.85	4.85	10.00	7.46
Sodium (Na)	mg/L	0.030	36.2	36.5	38.1	36.20	38.10	36.93
Zinc (Zn)	mg/L	0.0020	0.0032	0.0074	0.0098	0.0032	0.0098	0.0068
Total Organic Carbon by Combustion	8/ =	1.1020			3.3000		2.2000	
Total Organic Carbon	mg/L	0.50	/	/	165	165.0	165.0	165.0
Total Suspended Solids	8/ -	5.50		/				
Total Suspended Solids	mg/L	13	25.0	10.0	10.0	10.0	25.0	15.0
pH	6/ -		_5.0	23.0			_5.0	23.0
рН	pH Units	0.10	8.09	8.05	8.84	8.05	8.84	8.33
Benzene	mg/L	0.00050	1	/	/	0.0	0.0	0.0
Toluene	mg/L	0.00030	/	/	1	0.0	0.0	0.0
Ethyl Benzene	mg/L	0.0010	1	/	1	0.0	0.0	0.0
o-Xylene	mg/L	0.00050	/	/	1	0.0	0.0	0.0
F1 (C6-C10)		0.00030	1	/	,	0.0		0.0
F1 (C6-C10) F2 (C10-C16)	mg/L		/	/	/		0.0	
	mg/L	0.25	/	/	/	0.0	0.0	0.0
F3 (C16-C34)	mg/L	0.25	/	/	/	0.0	0.0	0.0
F4 (C34-C50)	mg/L	0.25	/	/	/	0.0	0.0	0.0
Total Hydrocarbons (C6-C50)	mg/L	0.44	/	/	/	0.0	0.0	0.0

Original WATER LICENCE INSPECTION FORM Follow-Up Report Licensee Representative Licensee Steve England Hamlet of Arviat Representative's Title Licence No. / Expiry Senior Administrative Officer 3AM-ARV1016 Land / Other Authorizations Land / Other Authorizations Date of Inspection Inspector August 9th 2017 Atuat Shouldice **Activities Inspected** Reclamation Camp Roads/Hauling ☐ Construction Mining Drilling Other: Other: Municipality Non-Compliance with Act or Licence (s.__) Action Required (s. **SECTION 1** Comments (s.1) Summary On August 9th, 2017 Indigenous and Northern Affairs Canada's Water Resource Officer, Atuat Shouldice completed an annual Community inspection of the hamlet of Arviat permit 3AM-ARV1016. The inspection was conducted in the presence of Megan Lusty, Municipal Planning Engineer and Steve England Senior Administrative Office. During the writing of this report the Hamlet of Arviat was in the process of renewing their water licence. Comments (s._ Non-Compliance with Act or Licence (s.2) Action Required (s. **SECTION 2** Observations LANDFILL The landfill in Arviat is very organized and well maintained; signage is posted to segregate Hazardous waste from entering the landfill. Recycling is an active project, segregating lumber and building materials to be reused. WASTE METAL DUMP The Hamlet of Arviat recently purchased a crusher to shred bulk items. During the inspection, the hamlet had on-going program to depollute automotive vehicles and recreational vehicles. During the course of the inspection, no waste was seen leaving the landfill and metal dump sites. Hazardous Waste Hazardous waste is regularly collect and stored in seacans. The Hamlet of Arivat runs programs and informs community on how hazardous waste should be store and places before collected. SEWAGE DISPOSAL The sewage lagoon was inspected during the site visit. The lagoon appeared to be in good repair and adequate freeboard was observed. Sewage samples taken by the Hamlet indicate that effluent was within water license criteria. The drinking water pumphouse was visited during the inspection and water use records were made available for review. The water is being recorded as required at wolf creek and also by truck loads filled from resolver. No water license compliance issues were noted. **SECTION 3** Comments (s. Non-Compliance with Act or Licence, (s. Action Required (s.3) The Hamlet of Arviat is currently using water without the authorization of a valid water licence. This is in contravention of the Nunavut Waters and Nunavut Surface Rights Tribunal Act, section 11. In order for Arviat to be authorized for their current activities they must hold a water licence for the use of water and deposit of waste. This includes the use of drinking water from Wolf Creek and the discharge of waste from the sewage lagoon. The Hamlet needs to continue demonstrating progress towards obtaining a water license.

Licensee or Representative	Inspector's Name WRO A Shouldice
Signature	Signature
Date	Date 4/19/2018



