ANNUAL REPORT
FOR THE HAMLET OF ARVIAT

YEAR BEING REPORTED: 2016

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 (m^3)	Quantity of Sewage Waste Discharged (m^3)
January	8,228.66142	Same
February	7,824.40590	Same
March	8,383.62280	Same
April	7,961.36380	Same
May	8,131.34500	Same
June	7,965.90810	Same
July	8,205.04350	Same
August	8,414.33550	Same
September	7,956.45710	Same
October	8,270.04940	Same
November	8,059.16200	Same
December	8,285.03710	Same
ANNUAL TOTAL	**97,685.39162**	**97,685.39162**

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;

- No modifications and/or major maintenance work was carried out in 2016.
- Segregation continues to improve at the Solid Waste Site and Bulky Metals Dump. 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.

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:
- 2016127, 2016-04-19, Arviat, 802 10th Avenue, unit 271,No. 2 Home heating fuel 0L
- 2016173, 2016-05-16, Southwest of the Northern Store, Diesel, 100L
- 2016193, 2016-05-26, 801 8th street, Heating Oil, 100L
- 2016194, 2015-05-26, 801 8th street, Heating Fuel, 100L
- 2016225, 2016-06-17, 404 A 5th street, Heating Fuel, 100L

vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;

- Abandonment and Restoration will take place during 2017 for the Old Sewage Lagoons, as per the *Old Sewage Lagoons Abandonment and Restoration Plan, Hamlet of Arviat* prepared by Nuna Burnside, December 2010.
- Samples from the Old Sewage Lagoon were collected on July 21, 2015 and June 22, 2016. All parameters are below the effluent quality limits outlined in the Licence.

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;

- An Amendment/Renewal Application was submitted to the NWB February 27, 2015.

viii. any other details on water use or waste disposal requested by the Board by November 1st of the year being reported; and

ix. updates or revisions to the approved Operation and Maintenance Plans.

- The *Water Supply Operation and Maintenance (O&M) Plan, Hamlet of Arviat* prepared by Nuna Burnside, May 2009 is currently being updated. The updated O&M Plan will be submitted to the NWB in 2017.
- The *Sewage Treatment Facility Operation and Maintenance (O&M) Plan, Hamlet of Arviat* prepared by Nuna Burnside, January 2009, revised May 2009 is currently being updated. The updated O&M Plan will be submitted to the NWB in 2017.
- The *Solid Waste Management Facility Operation and Maintenance (O&M) Plan, Hamlet of Arviat* prepared by Nuna Burnside, January 2009, revised May 2009 is currently being updated. The updated O&M Plan will be submitted to the NWB in 2016.
- The *Environmental Monitoring Program and Quality Assurance/Quality Control Plan, Hamlet of Arviat* prepared by Nuna Burnside, December 2010 is currently being updated. The updated QA/QC Plan will be submitted to the NWB in 2017.
- The *Environmental Emergency Contingency Plan, Hamlet of Arviat* prepared by Nuna Burnside, May 2009, revised May 2010 is currently being updated. The updated Plan will be submitted to the NWB in 2017.

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 July 20, 2015. A copy of the inspection report has not been received.

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 22, 2016 – 21 pages
Appendix D: Certificate of Analysis July 17, 2016 – 17 pages

Appendix E: Certificate of Analysis August 25, 2016 – 18 pages
Appendix F: Certificate of Analysis September 16, 2016 – 10 pages
Appendix G: Hazardous Materials Spill Database, Arviat 2015 – 1 page

ARV-4 Effluent Quality Limits

Parameter	Maximum Concentration of any Grab Sample
Fecal Coliform	1×10^4 CFU/dl
BOD_5	80 mg/l
Total Suspended Solids	100 mg/l
Oil and Grease	No visible sheen
pH	Between 6 and 9

Nunavut Water Board Licence No. 3AM-ARV1015

Arviat, NU

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

Week	Starting Date	ARV-2a			ARV-4			ARV-5			ARV-6			Checked By
		Water Present (check)			Water Present (check)			Water Present (check)			Water Present (check)			
		Yes	No	Frozen	Yes	No	Frozen	Yes	No	Frozen	Yes	No	Frozen	
1	02-May-16													
2	09-May-16													
3	16-May-16													
4	23-May-16													
5	30-May-16													
6	06-Jun-16													
7	13-Jun-16													
8	20-Jun-16													
9	27-Jun-16													
10	04-Jul-16													
11	11-Jul-16													
12	18-Jul-16													
13	25-Jul-16													
14	01-Aug-16													
15	08-Aug-16													
16	15-Aug-16													
17	22-Aug-16													
18	29-Aug-16													

Monitoring Program Station Locations:

ARV-2a: Effluent discharge from the Discharge Point of the Solid Waste Disposal Facility

ARV-4: Effluent from the discharge point of the Sewage Disposal Facility (end of wetland)

ARV-5: Discharge from the Bulky Metal Waste Area

ARV-6: Discharge from the Hazardous Waste Storage Area

Hamlet of Arviat
ATTN: STEVE ENGLAND
PO Box 150
Arviat NU X0C 0E0

Date Received: 24-JUN-16
Report Date: 08-JUL-16 10:59 (MT)
Version: FINAL

Client Phone: 867-857-2841

Certificate of Analysis

Lab Work Order #: L1788659

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

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-1 ARV-2							
Sampled By: LAURA on 22-JUN-16 @ 13:54							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
Toluene	<0.0010		0.0010	mg/L		29-JUN-16	R3495638
Ethyl benzene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
o-Xylene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
m+p-Xylenes	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
F1 (C6-C10)	<0.10		0.10	mg/L		29-JUN-16	R3495638
Surrogate: 4-Bromofluorobenzene (SS)	98.9		70-130	%		29-JUN-16	R3495638
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.17		0.10	mg/L	30-JUN-16	30-JUN-16	R3495489
F3 (C16-C34)	0.37		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489
F4 (C34-C50)	<0.25		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489
Surrogate: 2-Bromobenzotrifluoride	93.9		60-140	%	30-JUN-16	30-JUN-16	R3495489
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		05-JUL-16	
F2-Naphth	0.17		0.10	mg/L		05-JUL-16	
F3-PAH	0.37		0.25	mg/L		05-JUL-16	
Total Hydrocarbons (C6-C50)	0.54		0.38	mg/L		05-JUL-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		04-JUL-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthylene	0.000039	EMPC	0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Acridine	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Chrysene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluoranthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluorene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Naphthalene	<0.000050		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Phenanthrene	<0.000050		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Pyrene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Quinoline	0.000067		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acenaphthene d10	90.9		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acridine d9	93.6		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Chrysene d12	89.8		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Naphthalene d8	126.1		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Phenanthrene d10	91.9		40-130	%	28-JUN-16	30-JUN-16	R3496277
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	490		1.2	mg/L		04-JUL-16	
Alkalinity, Carbonate							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-1 ARV-2							
Sampled By: LAURA on 22-JUN-16 @ 13:54							
Matrix: EFF							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		04-JUL-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		04-JUL-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	401		1.0	mg/L		29-JUN-16	R3493894
Ammonia by colour							
Ammonia, Total (as N)	9.2		1.0	mg/L		27-JUN-16	R3491152
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	20.3		6.0	mg/L		24-JUN-16	R3492952
Carbonaceous BOD							
BOD Carbonaceous	17.5		6.0	mg/L		24-JUN-16	R3492952
Chloride in Water by IC							
Chloride (Cl)	414		5.0	mg/L		30-JUN-16	R3496234
Conductivity							
Conductivity	2460		1.0	umhos/cm		29-JUN-16	R3493894
Fecal Coliform							
Fecal Coliforms	110	PEHT	3	MPN/100mL		24-JUN-16	R3493282
Hardness Calculated							
Hardness (as CaCO3)	726		0.30	mg/L		29-JUN-16	
Mercury Total							
Mercury (Hg)-Total	0.000029		0.000020	mg/L	27-JUN-16	27-JUN-16	R3490656
Nitrate in Water by IC							
Nitrate (as N)	<0.20	DLM	0.20	mg/L		30-JUN-16	R3496234
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.22		0.22	mg/L		05-JUL-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.10	DLM	0.10	mg/L		30-JUN-16	R3496234
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		27-JUN-16	R3491620
Phenol (4AAP)							
Phenols (4AAP)	0.0083		0.0010	mg/L		29-JUN-16	R3492703
Phosphorus, Total							
Phosphorus (P)-Total	1.09		0.010	mg/L		07-JUL-16	R3498236
Sulfate in Water by IC							
Sulfate (SO4)	297		3.0	mg/L		30-JUN-16	R3496234
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0353		0.0050	mg/L	28-JUN-16	28-JUN-16	R3491764
Arsenic (As)-Total	0.00396		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Cadmium (Cd)-Total	0.000258		0.000010	mg/L	28-JUN-16	28-JUN-16	R3491764
Calcium (Ca)-Total	217		0.10	mg/L	28-JUN-16	28-JUN-16	R3491764
Chromium (Cr)-Total	0.0015		0.0010	mg/L	28-JUN-16	28-JUN-16	R3491764
Cobalt (Co)-Total	0.00202		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Copper (Cu)-Total	0.0364		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Iron (Fe)-Total	5.13		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Lead (Pb)-Total	0.00546		0.000090	mg/L	28-JUN-16	28-JUN-16	R3491764
Magnesium (Mg)-Total	44.7		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Manganese (Mn)-Total	0.964		0.00030	mg/L	28-JUN-16	28-JUN-16	R3491764
Nickel (Ni)-Total	0.0072		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Potassium (K)-Total	41.4		0.020	mg/L	28-JUN-16	28-JUN-16	R3491764
Sodium (Na)-Total	248		0.030	mg/L	28-JUN-16	28-JUN-16	R3491764
Zinc (Zn)-Total	0.143		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Total Organic Carbon by Combustion							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-1 ARV-2							
Sampled By: LAURA on 22-JUN-16 @ 13:54							
Matrix: EFF							
Total Organic Carbon by Combustion							
Total Organic Carbon	30.3		0.50	mg/L		28-JUN-16	R3491831
Total Suspended Solids							
Total Suspended Solids	26.0		5.0	mg/L		27-JUN-16	R3491105
pH							
pH	7.57		0.10	pH units		29-JUN-16	R3493894
L1788659-2 ARV-4							
Sampled By: LAURA on 22-JUN-16 @ 13:20							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
Toluene	<0.0010		0.0010	mg/L		29-JUN-16	R3495638
Ethyl benzene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
o-Xylene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
m+p-Xylenes	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
F1 (C6-C10)	<0.10		0.10	mg/L		29-JUN-16	R3495638
Surrogate: 4-Bromofluorobenzene (SS)	98.0		70-130	%		29-JUN-16	R3495638
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	30-JUN-16	30-JUN-16	R3495489
F3 (C16-C34)	0.28		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489
F4 (C34-C50)	<0.25		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489
Surrogate: 2-Bromobenzotrifluoride	102.7		60-140	%	30-JUN-16	30-JUN-16	R3495489
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		05-JUL-16	
F2-Naphth	<0.10		0.10	mg/L		05-JUL-16	
F3-PAH	0.28		0.25	mg/L		05-JUL-16	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		05-JUL-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		04-JUL-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthylene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Acridine	0.000056		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Chrysene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluoranthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluorene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Naphthalene	<0.000050		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Phenanthrene	<0.000050		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Pyrene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Quinoline	0.000022	EMPC	0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-2 ARV-4							
Sampled By: LAURA on 22-JUN-16 @ 13:20							
Matrix: EFF							
Polyaromatic Hydrocarbons (PAHs)							
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acenaphthene d10	99.7		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acridine d9	103.5		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Chrysene d12	101.8		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Naphthalene d8	102.3		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Phenanthrene d10	101.6		40-130	%	28-JUN-16	30-JUN-16	R3496277
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	203		1.2	mg/L		04-JUL-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		04-JUL-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		04-JUL-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	167		1.0	mg/L		29-JUN-16	R3493894
Ammonia by colour							
Ammonia, Total (as N)	17.0		2.0	mg/L		28-JUN-16	R3492031
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	15.4		6.0	mg/L		24-JUN-16	R3492952
Carbonaceous BOD							
BOD Carbonaceous	14.0		6.0	mg/L		24-JUN-16	R3492952
Chloride in Water by IC							
Chloride (Cl)	188		2.5	mg/L		30-JUN-16	R3496234
Conductivity							
Conductivity	968		1.0	umhos/cm		29-JUN-16	R3493894
Fecal Coliform							
Fecal Coliforms	93	PEHT	3	MPN/100mL		24-JUN-16	R3493282
Hardness Calculated							
Hardness (as CaCO3)	124		0.30	mg/L		29-JUN-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	27-JUN-16	27-JUN-16	R3490656
Nitrate in Water by IC							
Nitrate (as N)	<0.10	DLM	0.10	mg/L		30-JUN-16	R3496234
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.11		0.11	mg/L		05-JUL-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.050	DLM	0.050	mg/L		30-JUN-16	R3496234
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		27-JUN-16	R3491620
Phenol (4AAP)							
Phenols (4AAP)	0.0015		0.0010	mg/L		29-JUN-16	R3492703
Phosphorus, Total							
Phosphorus (P)-Total	5.15		0.050	mg/L		07-JUL-16	R3498236
Sulfate in Water by IC							
Sulfate (SO4)	7.2	DLM	1.5	mg/L		30-JUN-16	R3496234
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0818		0.0050	mg/L	28-JUN-16	28-JUN-16	R3491764
Arsenic (As)-Total	0.00647		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Cadmium (Cd)-Total	0.000027		0.000010	mg/L	28-JUN-16	28-JUN-16	R3491764
Calcium (Ca)-Total	23.1		0.10	mg/L	28-JUN-16	28-JUN-16	R3491764
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	28-JUN-16	28-JUN-16	R3491764
Cobalt (Co)-Total	0.00286		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-2 ARV-4							
Sampled By: LAURA on 22-JUN-16 @ 13:20							
Matrix: EFF							
Total Metals by ICP-MS							
Copper (Cu)-Total	0.00843		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Iron (Fe)-Total	4.04		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Lead (Pb)-Total	0.000452		0.000090	mg/L	28-JUN-16	28-JUN-16	R3491764
Magnesium (Mg)-Total	16.1		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Manganese (Mn)-Total	0.550		0.00030	mg/L	28-JUN-16	28-JUN-16	R3491764
Nickel (Ni)-Total	0.0067		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Potassium (K)-Total	21.3		0.020	mg/L	28-JUN-16	28-JUN-16	R3491764
Sodium (Na)-Total	111		0.030	mg/L	28-JUN-16	28-JUN-16	R3491764
Zinc (Zn)-Total	0.0054		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Total Organic Carbon by Combustion							
Total Organic Carbon	26.0		0.50	mg/L		28-JUN-16	R3491831
Total Suspended Solids							
Total Suspended Solids	30.0		5.0	mg/L		27-JUN-16	R3491105
pH							
pH	7.16		0.10	pH units		29-JUN-16	R3493894
L1788659-3 ARV-5							
Sampled By: LAURA on 22-JUN-16 @ 14:09							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
Toluene	<0.0010		0.0010	mg/L		29-JUN-16	R3495638
Ethyl benzene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
o-Xylene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
m+p-Xylenes	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
F1 (C6-C10)	<0.10		0.10	mg/L		29-JUN-16	R3495638
Surrogate: 4-Bromofluorobenzene (SS)	97.0		70-130	%		29-JUN-16	R3495638
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	30-JUN-16	30-JUN-16	R3495489
F3 (C16-C34)	<0.25		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489
F4 (C34-C50)	<0.25		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489
Surrogate: 2-Bromobenzotrifluoride	124.7		60-140	%	30-JUN-16	30-JUN-16	R3495489
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		05-JUL-16	
F2-Naphth	<0.10		0.10	mg/L		05-JUL-16	
F3-PAH	<0.25		0.25	mg/L		05-JUL-16	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		05-JUL-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		04-JUL-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthylene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Acridine	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-3 ARV-5							
Sampled By: LAURA on 22-JUN-16 @ 14:09							
Matrix: EFF							
Polyaromatic Hydrocarbons (PAHs)							
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Chrysene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluoranthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluorene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Naphthalene	<0.000050		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Phenanthrene	<0.000050		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Pyrene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Quinoline	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acenaphthene d10	91.5		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acridine d9	94.4		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Chrysene d12	96.1		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Naphthalene d8	93.2		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Phenanthrene d10	92.7		40-130	%	28-JUN-16	30-JUN-16	R3496277
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	38.4		1.2	mg/L		04-JUL-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		04-JUL-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		04-JUL-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	31.5		1.0	mg/L		29-JUN-16	R3493894
Ammonia by colour							
Ammonia, Total (as N)	<0.010		0.010	mg/L		27-JUN-16	R3491152
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	2.3		2.0	mg/L		24-JUN-16	R3492952
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		24-JUN-16	R3492952
Chloride in Water by IC							
Chloride (Cl)	94.5		0.50	mg/L		30-JUN-16	R3496234
Conductivity							
Conductivity	386		1.0	umhos/cm		29-JUN-16	R3493894
Fecal Coliform							
Fecal Coliforms	<3	PEHT	3	MPN/100mL		24-JUN-16	R3493282
Hardness Calculated							
Hardness (as CaCO3)	64.3		0.30	mg/L		29-JUN-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	27-JUN-16	27-JUN-16	R3490656
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		30-JUN-16	R3496234
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		05-JUL-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		30-JUN-16	R3496234
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		27-JUN-16	R3491620
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		29-JUN-16	R3492703
Phosphorus, Total							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-3 ARV-5							
Sampled By: LAURA on 22-JUN-16 @ 14:09							
Matrix: EFF							
Phosphorus, Total							
Phosphorus (P)-Total	0.060		0.010	mg/L		07-JUL-16	R3498236
Sulfate in Water by IC							
Sulfate (SO4)	7.51		0.30	mg/L		30-JUN-16	R3496234
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.352		0.0050	mg/L	28-JUN-16	28-JUN-16	R3491764
Arsenic (As)-Total	0.00051		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	28-JUN-16	28-JUN-16	R3491764
Calcium (Ca)-Total	11.7		0.10	mg/L	28-JUN-16	28-JUN-16	R3491764
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	28-JUN-16	28-JUN-16	R3491764
Cobalt (Co)-Total	0.00040		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Copper (Cu)-Total	0.00123		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Iron (Fe)-Total	3.75		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Lead (Pb)-Total	0.000439		0.000090	mg/L	28-JUN-16	28-JUN-16	R3491764
Magnesium (Mg)-Total	8.54		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Manganese (Mn)-Total	0.144		0.00030	mg/L	28-JUN-16	28-JUN-16	R3491764
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Potassium (K)-Total	3.33		0.020	mg/L	28-JUN-16	28-JUN-16	R3491764
Sodium (Na)-Total	50.3		0.030	mg/L	28-JUN-16	28-JUN-16	R3491764
Zinc (Zn)-Total	0.0098		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Total Organic Carbon by Combustion							
Total Organic Carbon	7.46		0.50	mg/L		30-JUN-16	R3494858
Total Suspended Solids							
Total Suspended Solids	124		5.0	mg/L		27-JUN-16	R3491105
pH							
pH	7.02		0.10	pH units		29-JUN-16	R3493894
L1788659-4 ARV-6							
Sampled By: LAURA on 22-JUN-16 @ 14:23							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
Toluene	0.0030		0.0010	mg/L		29-JUN-16	R3495638
Ethyl benzene	0.00240		0.00050	mg/L		29-JUN-16	R3495638
o-Xylene	0.00614		0.00050	mg/L		29-JUN-16	R3495638
m+p-Xylenes	0.00897		0.00050	mg/L		29-JUN-16	R3495638
F1 (C6-C10)	<0.10		0.10	mg/L		29-JUN-16	R3495638
Surrogate: 4-Bromofluorobenzene (SS)	94.0		70-130	%		29-JUN-16	R3495638
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.12		0.10	mg/L	30-JUN-16	30-JUN-16	R3495489
F3 (C16-C34)	0.69		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489
F4 (C34-C50)	<0.25		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489
Surrogate: 2-Bromobenzotrifluoride	94.1		60-140	%	30-JUN-16	30-JUN-16	R3495489
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		05-JUL-16	
F2-Naphth	0.12		0.10	mg/L		05-JUL-16	
F3-PAH	0.69		0.25	mg/L		05-JUL-16	
Total Hydrocarbons (C6-C50)	0.81		0.38	mg/L		05-JUL-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	0.0151		0.0015	mg/L		04-JUL-16	
Polyaromatic Hydrocarbons (PAHs)							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-4 ARV-6							
Sampled By: LAURA on 22-JUN-16 @ 14:23							
Matrix: EFF							
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	0.000337		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
2-Methyl Naphthalene	0.000417		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthylene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Acridine	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Chrysene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluoranthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluorene	0.000084		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Naphthalene	0.000451		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Phenanthrene	<0.000050		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Pyrene	0.000011	EMPC	0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Quinoline	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acenaphthene d10	94.8		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acridine d9	95.2		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Chrysene d12	105.9		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Naphthalene d8	84.1		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Phenanthrene d10	93.5		40-130	%	28-JUN-16	30-JUN-16	R3496277
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	31.0		1.2	mg/L		04-JUL-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		04-JUL-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		04-JUL-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	25.4		1.0	mg/L		29-JUN-16	R3493894
Ammonia by colour							
Ammonia, Total (as N)	<0.010		0.010	mg/L		27-JUN-16	R3491152
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	3.1		2.0	mg/L		25-JUN-16	R3495890
Carbonaceous BOD							
BOD Carbonaceous	2.3		2.0	mg/L		25-JUN-16	R3495890
Chloride in Water by IC							
Chloride (Cl)	112		0.50	mg/L		30-JUN-16	R3496234
Conductivity							
Conductivity	427		1.0	umhos/cm		29-JUN-16	R3493894
Fecal Coliform							
Fecal Coliforms	<3	PEHT	3	MPN/100mL		24-JUN-16	R3493282
Hardness Calculated							
Hardness (as CaCO3)	139		0.30	mg/L		29-JUN-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	27-JUN-16	27-JUN-16	R3490656
Nitrate in Water by IC							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-4 ARV-6							
Sampled By: LAURA on 22-JUN-16 @ 14:23							
Matrix: EFF							
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		30-JUN-16	R3496234
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		05-JUL-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		30-JUN-16	R3496234
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		28-JUN-16	R3492272
Phenol (4AAP)							
Phenols (4AAP)	0.0031		0.0010	mg/L		29-JUN-16	R3492703
Phosphorus, Total							
Phosphorus (P)-Total	0.122		0.010	mg/L		07-JUL-16	R3498236
Sulfate in Water by IC							
Sulfate (SO4)	0.46		0.30	mg/L		30-JUN-16	R3496234
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.120		0.0050	mg/L	28-JUN-16	28-JUN-16	R3491764
Arsenic (As)-Total	0.00052		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Cadmium (Cd)-Total	0.000032		0.000010	mg/L	28-JUN-16	28-JUN-16	R3491764
Calcium (Ca)-Total	45.8		0.10	mg/L	28-JUN-16	28-JUN-16	R3491764
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	28-JUN-16	28-JUN-16	R3491764
Cobalt (Co)-Total	0.00194		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Copper (Cu)-Total	0.00114		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Iron (Fe)-Total	6.73		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Lead (Pb)-Total	0.000220		0.000090	mg/L	28-JUN-16	28-JUN-16	R3491764
Magnesium (Mg)-Total	6.08		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Manganese (Mn)-Total	1.14		0.00030	mg/L	28-JUN-16	28-JUN-16	R3491764
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Potassium (K)-Total	3.72		0.020	mg/L	28-JUN-16	28-JUN-16	R3491764
Sodium (Na)-Total	10.4		0.030	mg/L	28-JUN-16	28-JUN-16	R3491764
Zinc (Zn)-Total	0.0391		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Total Organic Carbon by Combustion							
Total Organic Carbon	8.54		0.50	mg/L		28-JUN-16	R3491831
Total Suspended Solids							
Total Suspended Solids	23.0		5.0	mg/L		27-JUN-16	R3491105
pH							
pH	6.56		0.10	pH units		29-JUN-16	R3493894
L1788659-5 OLD LAGOON							
Sampled By: LAURA on 22-JUN-16 @ 13:38							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
Toluene	<0.0010		0.0010	mg/L		29-JUN-16	R3495638
Ethyl benzene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
o-Xylene	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
m+p-Xylenes	<0.00050		0.00050	mg/L		29-JUN-16	R3495638
F1 (C6-C10)	<0.10		0.10	mg/L		29-JUN-16	R3495638
Surrogate: 4-Bromofluorobenzene (SS)	95.1		70-130	%		29-JUN-16	R3495638
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.12		0.10	mg/L	30-JUN-16	30-JUN-16	R3495489
F3 (C16-C34)	10.4		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489
F4 (C34-C50)	0.27		0.25	mg/L	30-JUN-16	30-JUN-16	R3495489

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-5 OLD LAGOON							
Sampled By: LAURA on 22-JUN-16 @ 13:38							
Matrix: EFF							
CCME PHC F2-F4 in Water							
Surrogate: 2-Bromobenzotrifluoride	95.2		60-140	%	30-JUN-16	30-JUN-16	R3495489
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		05-JUL-16	
F2-Naphth	0.12		0.10	mg/L		05-JUL-16	
F3-PAH	10.4		0.25	mg/L		05-JUL-16	
Total Hydrocarbons (C6-C50)	10.8		0.38	mg/L		05-JUL-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		04-JUL-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Acenaphthylene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Acridine	0.000052		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)anthracene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Chrysene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluoranthene	<0.000020		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Fluorene	0.000022		0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Naphthalene	<0.000050		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Phenanthrene	0.000066		0.000050	mg/L	28-JUN-16	30-JUN-16	R3496277
Pyrene	<0.000010		0.000010	mg/L	28-JUN-16	30-JUN-16	R3496277
Quinoline	0.000052	EMPC	0.000020	mg/L	28-JUN-16	30-JUN-16	R3496277
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acenaphthene d10	105.2		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Acridine d9	103.5		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Chrysene d12	107.2		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Naphthalene d8	102.6		40-130	%	28-JUN-16	30-JUN-16	R3496277
Surrogate: Phenanthrene d10	101.5		40-130	%	28-JUN-16	30-JUN-16	R3496277
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	115		1.2	mg/L		04-JUL-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		04-JUL-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		04-JUL-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	93.9		1.0	mg/L		29-JUN-16	R3493894
Ammonia by colour							
Ammonia, Total (as N)	5.0		1.0	mg/L		27-JUN-16	R3491152
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	22.5		6.0	mg/L		25-JUN-16	R3495890
Carbonaceous BOD							
BOD Carbonaceous	12.0		6.0	mg/L		25-JUN-16	R3495890
Chloride in Water by IC							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1788659-5 OLD LAGOON							
Sampled By: LAURA on 22-JUN-16 @ 13:38							
Matrix: EFF							
Chloride in Water by IC							
Chloride (Cl)	55.0		0.50	mg/L		30-JUN-16	R3496234
Conductivity							
Conductivity	374		1.0	umhos/cm		29-JUN-16	R3493894
Fecal Coliform							
Fecal Coliforms	4	PEHT	3	MPN/100mL		24-JUN-16	R3493282
Hardness Calculated							
Hardness (as CaCO3)	70.9		0.30	mg/L		29-JUN-16	
Mercury Total							
Mercury (Hg)-Total	0.000022		0.000020	mg/L	27-JUN-16	27-JUN-16	R3490656
Nitrate in Water by IC							
Nitrate (as N)	0.426		0.020	mg/L		30-JUN-16	R3496234
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.507		0.070	mg/L		05-JUL-16	
Nitrite in Water by IC							
Nitrite (as N)	0.081		0.010	mg/L		30-JUN-16	R3496234
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		28-JUN-16	R3492272
Phenol (4AAP)							
Phenols (4AAP)	0.0011		0.0010	mg/L		29-JUN-16	R3492703
Phosphorus, Total							
Phosphorus (P)-Total	1.63		0.010	mg/L		07-JUL-16	R3498236
Sulfate in Water by IC							
Sulfate (SO4)	2.67		0.30	mg/L		30-JUN-16	R3496234
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.112		0.0050	mg/L	28-JUN-16	28-JUN-16	R3491764
Arsenic (As)-Total	0.00168		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Cadmium (Cd)-Total	0.000023		0.000010	mg/L	28-JUN-16	28-JUN-16	R3491764
Calcium (Ca)-Total	16.8		0.10	mg/L	28-JUN-16	28-JUN-16	R3491764
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	28-JUN-16	28-JUN-16	R3491764
Cobalt (Co)-Total	0.00050		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Copper (Cu)-Total	0.00737		0.00020	mg/L	28-JUN-16	28-JUN-16	R3491764
Iron (Fe)-Total	0.899		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Lead (Pb)-Total	0.000423		0.000090	mg/L	28-JUN-16	28-JUN-16	R3491764
Magnesium (Mg)-Total	7.04		0.010	mg/L	28-JUN-16	28-JUN-16	R3491764
Manganese (Mn)-Total	0.138		0.00030	mg/L	28-JUN-16	28-JUN-16	R3491764
Nickel (Ni)-Total	0.0027		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Potassium (K)-Total	10.0		0.020	mg/L	28-JUN-16	28-JUN-16	R3491764
Sodium (Na)-Total	36.5		0.030	mg/L	28-JUN-16	28-JUN-16	R3491764
Zinc (Zn)-Total	0.0074		0.0020	mg/L	28-JUN-16	28-JUN-16	R3491764
Total Organic Carbon by Combustion							
Total Organic Carbon	18.9		0.50	mg/L		28-JUN-16	R3491831
Total Suspended Solids							
Total Suspended Solids	44.0		5.0	mg/L		27-JUN-16	R3491105
pH							
pH	8.05		0.10	pH units		29-JUN-16	R3493894

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis

Test Method References:

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

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

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

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

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

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

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

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

BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B

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

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

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

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

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

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

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

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

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

EC-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.

ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
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.

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.

FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

The Most Probable Number (MPN) method is based on the Multiple Tube Fermentation technique. The results of examination of replicate tubes and dilutions of a sample are reported after confirmations specific to total coliform, fecal coliform and E. coli are performed. Results are reported in MPN/100 mL for water and MPN/gram for food and solid samples.

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)

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-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

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

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

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

Chain of Custody Numbers:

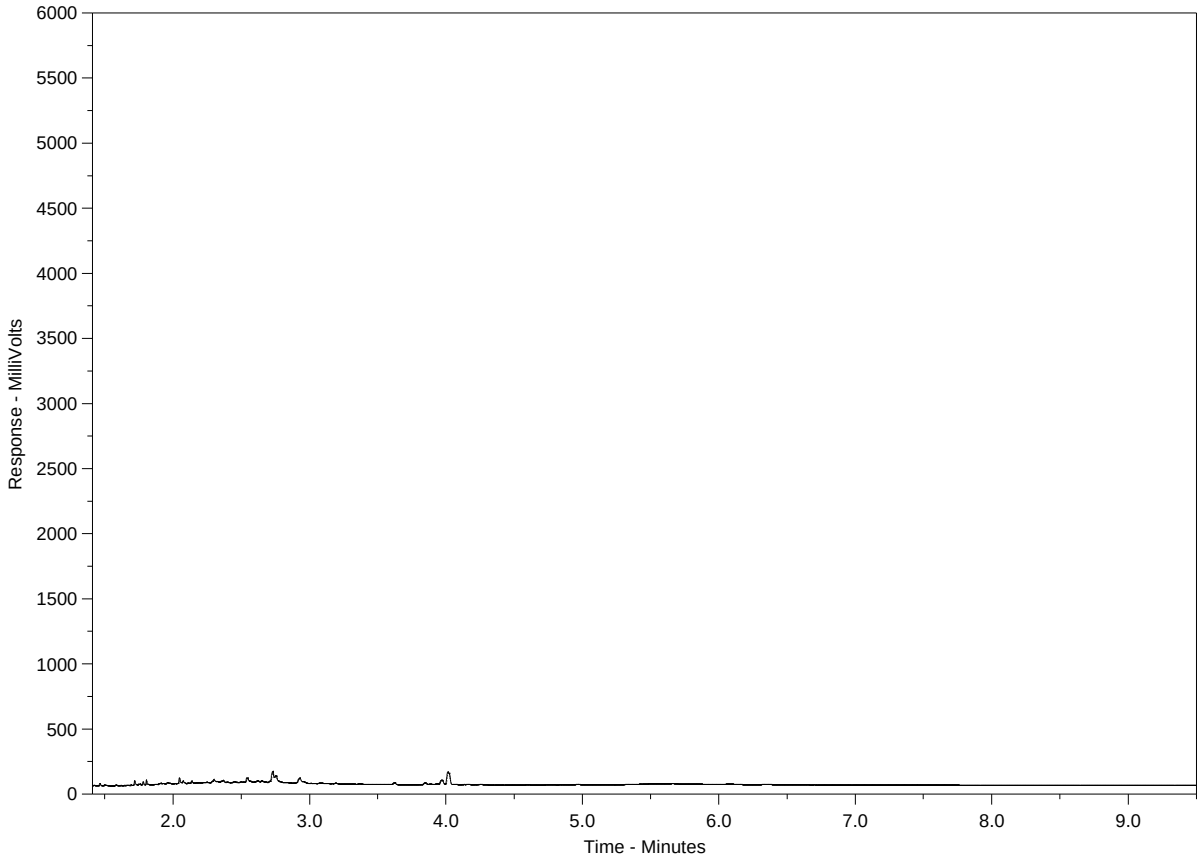
GLOSSARY OF REPORT TERMS

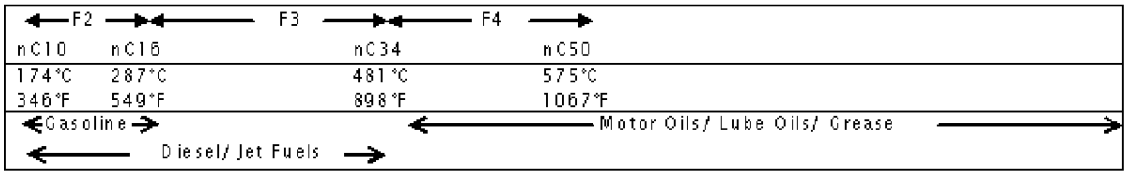
Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates 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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1788659-1
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.

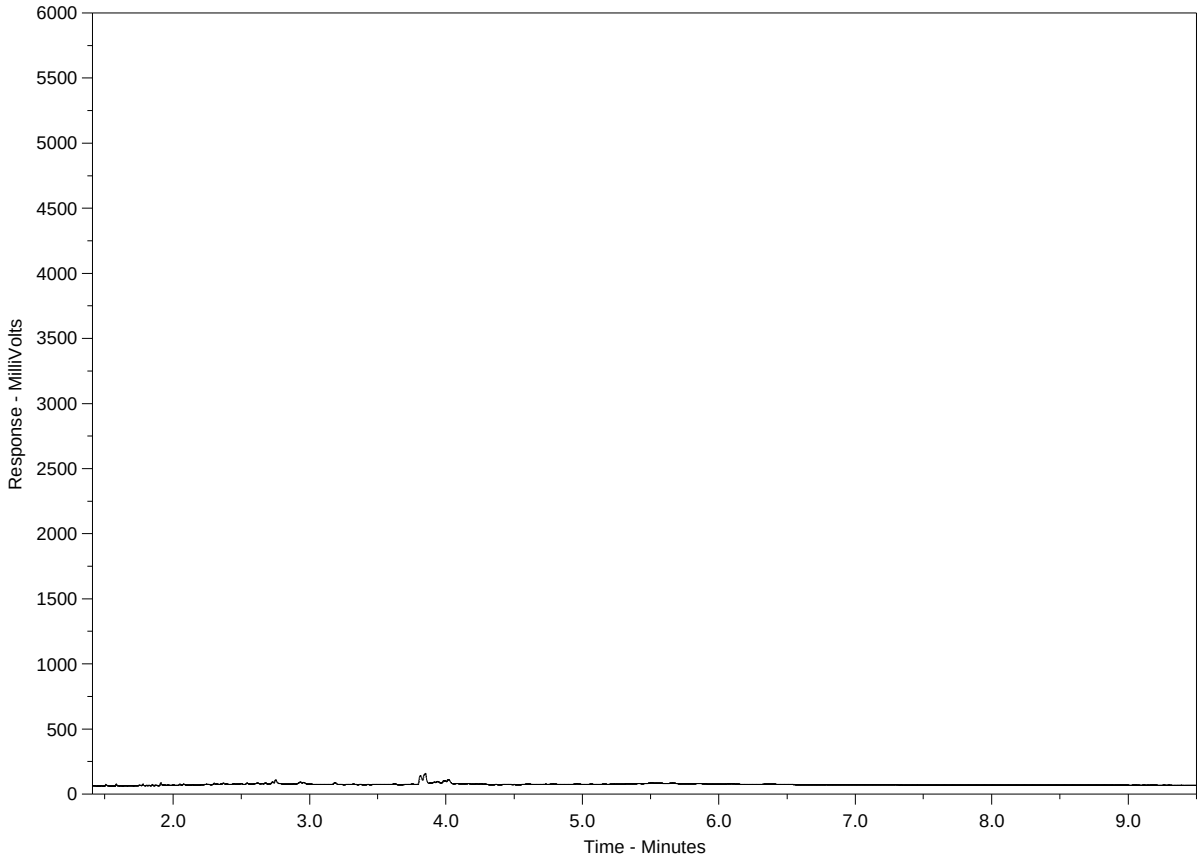
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

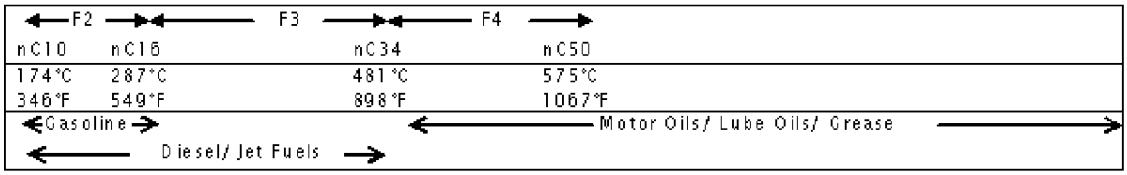
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1788659-2
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.

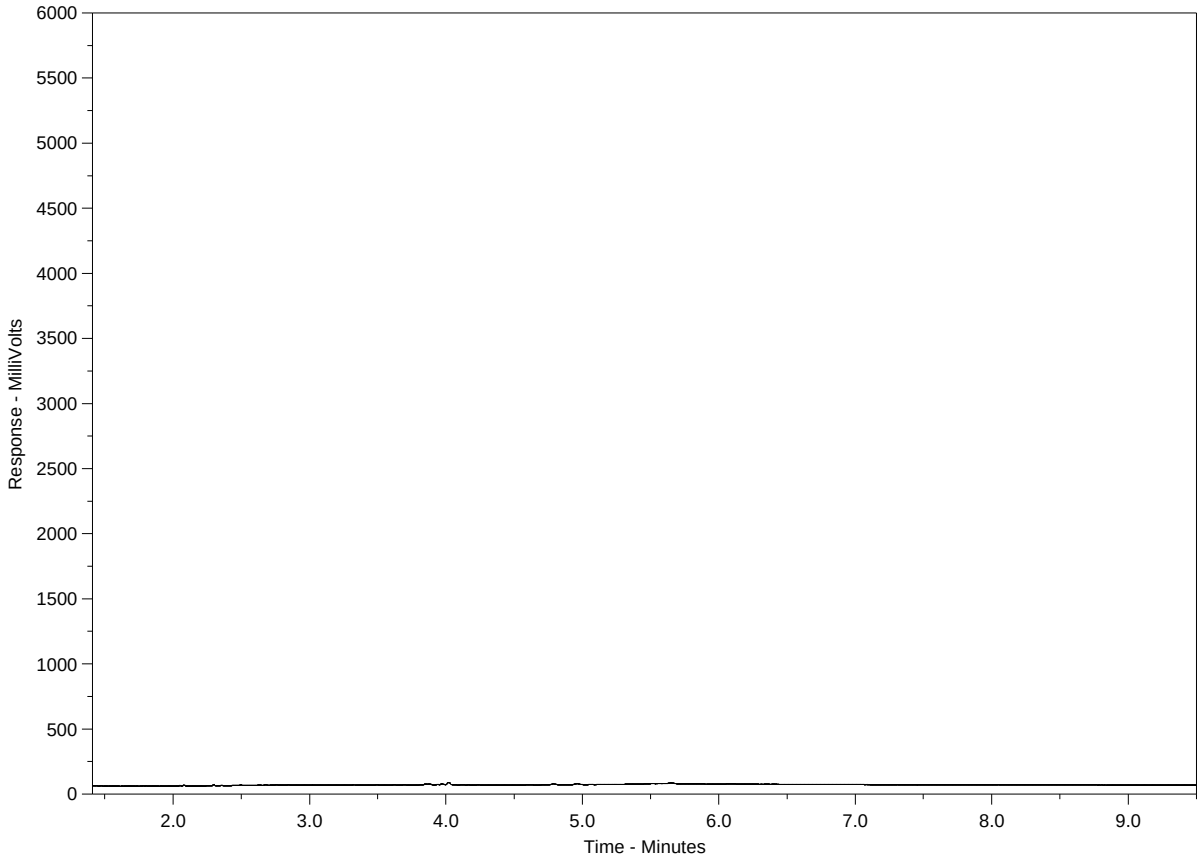
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

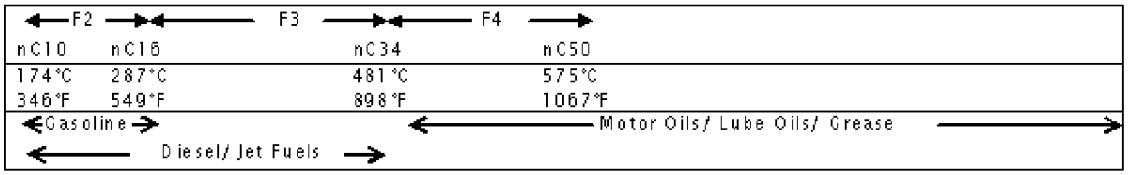
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1788659-3
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.

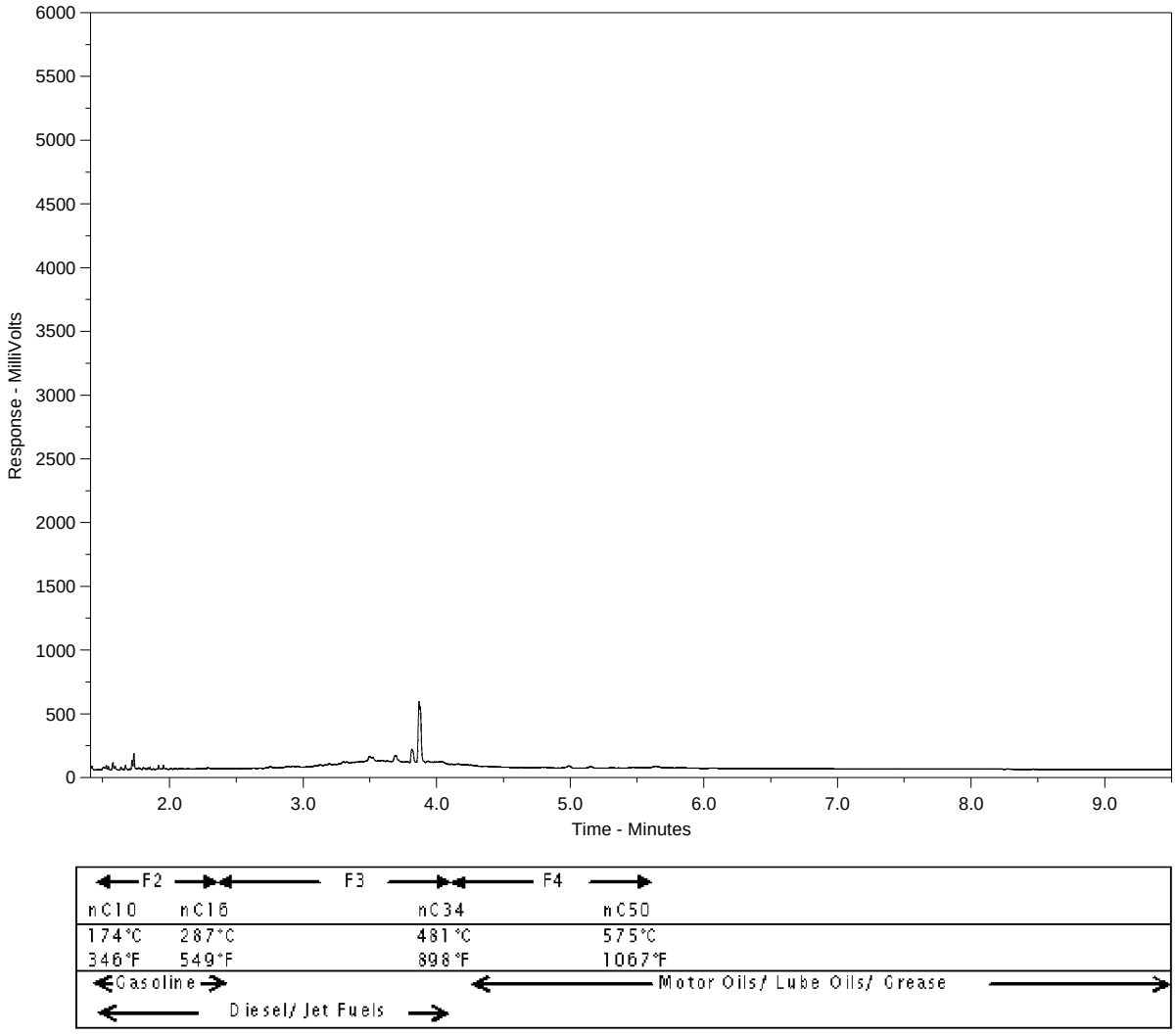
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1788659-4
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.

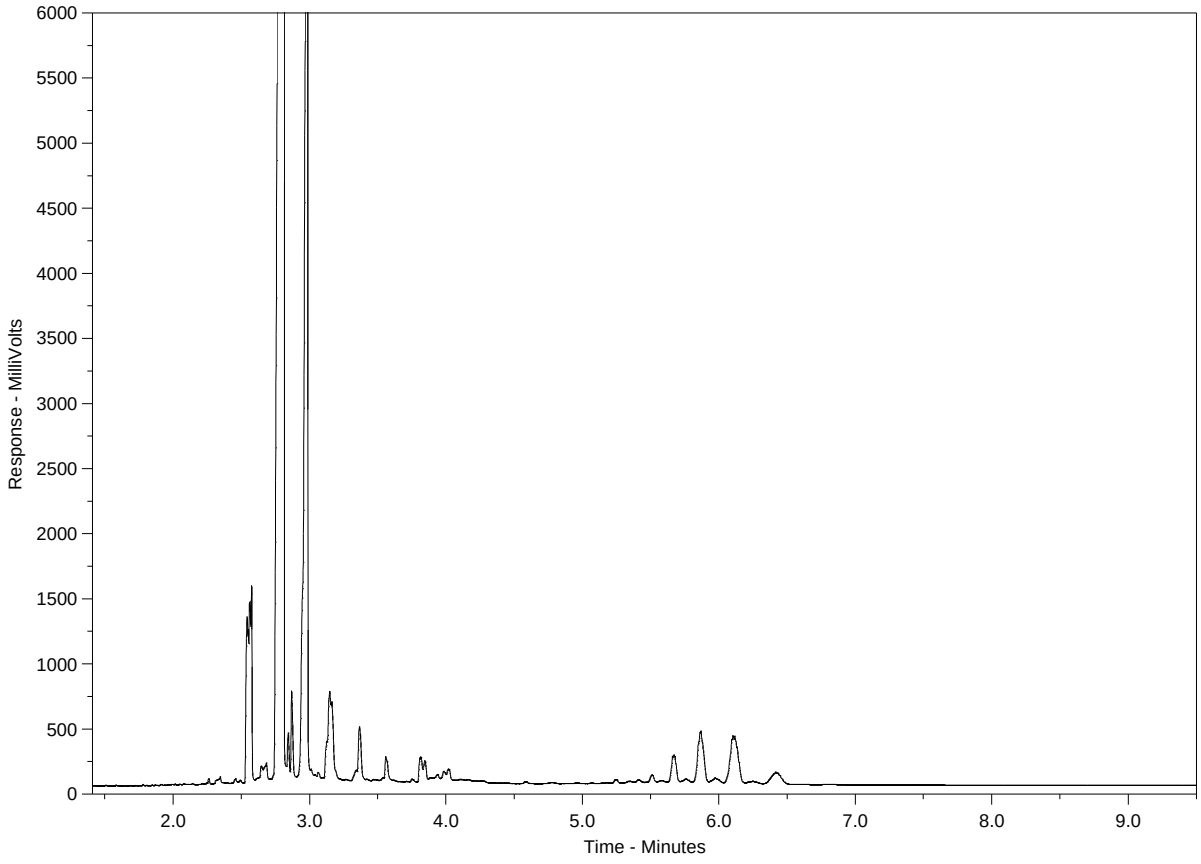
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

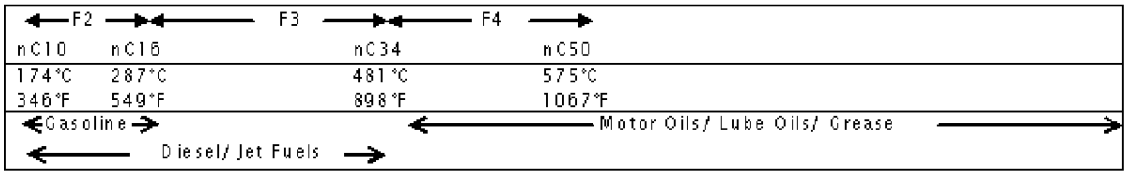
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1788659-5
Client Sample ID: OLD LAGOON





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

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

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

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

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1788659-COFC

COC Number: 15 - 571744

Page 1 of

Report To	Contact and company name below will appear on the final report
Company:	HAMLET OF ARVIAT
Contact:	STEVE ENGLAND
Phone:	867-857-2841
	Company address below will appear on the final report
Street:	
City/Province:	ARVIAT, NU
Postal Code:	X0C-0E0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Quality Control (QC) Report with Report ☐ YES ☐ NO

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax arviatsao@qiniq.com

Email 2 mlusty@gov.nu.ca

Email 3

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

P TATs with your AM - surcharges will apply

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

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

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

Date and Time Required for all E&P TATs:

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

Project Information

ALS Account # / Quote #:

Job #:

PO / AFE:

LSD:

ALS Lab Work Order # (lab use only)

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#

Major/Minor Code: | Routing Code:

Requisitioner:

Location:

ALS Contact: | Sampler: Laura

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Routine	Nitric Acid	BOD	Bacteria	Mercury	Oil & Grease	Sulfuric Acid	Phenols	Sodium x 2	BTEX/VOC x 3				Number of Containers
	ARV-2	22-06-16	154m	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
	ARV-4	22-06-16	120m	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
	ARV-5	22-06-16	209pm	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
	ARV-6	22-06-16	223pm	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
	Old lagoon	22-06-16	138m	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human drinking water use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

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

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C | FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Laura	Date: June 22'16	Time:	Received by: a	Date: 06/24/16	Time: 9am 11:50	Received by: FW	Date:	Time:

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

OCTOBER 2015 FRONT

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

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

14°C

Hamlet of Arviat
ATTN: STEVE ENGLAND
PO Box 150
Arviat NU X0C 0E0

Date Received: 14-JUL-16
Report Date: 26-JUL-16 09:48 (MT)
Version: FINAL

Client Phone: 867-857-2841

Certificate of Analysis

Lab Work Order #: L1798407

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

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1798407-1 ARV-2							
Sampled By: LAURA on 12-JUL-16 @ 13:40							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		20-JUL-16	R3509938
Toluene	<0.0010		0.0010	mg/L		20-JUL-16	R3509938
Ethyl benzene	<0.00050		0.00050	mg/L		20-JUL-16	R3509938
o-Xylene	<0.00050		0.00050	mg/L		20-JUL-16	R3509938
m+p-Xylenes	<0.00050		0.00050	mg/L		20-JUL-16	R3509938
F1 (C6-C10)	<0.10		0.10	mg/L		20-JUL-16	R3509938
Surrogate: 4-Bromofluorobenzene (SS)	80.9		70-130	%		20-JUL-16	R3509938
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.17		0.10	mg/L	15-JUL-16	15-JUL-16	R3504549
F3 (C16-C34)	0.47		0.25	mg/L	15-JUL-16	15-JUL-16	R3504549
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUL-16	15-JUL-16	R3504549
Surrogate: 2-Bromobenzotrifluoride	113.2		60-140	%	15-JUL-16	15-JUL-16	R3504549
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		22-JUL-16	
F2-Naphth	0.17		0.10	mg/L		22-JUL-16	
F3-PAH	0.47		0.25	mg/L		22-JUL-16	
Total Hydrocarbons (C6-C50)	0.65		0.38	mg/L		22-JUL-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		22-JUL-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
2-Methyl Naphthalene	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
Acenaphthene	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
Acenaphthylene	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
Anthracene	<0.00010	DLM	0.00010	mg/L	15-JUL-16	18-JUL-16	R3506759
Acridine	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(a)anthracene	<0.00010	DLM	0.00010	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(a)pyrene	<0.000050	DLM	0.000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(b&j)fluoranthene	<0.00010	DLM	0.00010	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(g,h,i)perylene	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(k)fluoranthene	<0.00010	DLM	0.00010	mg/L	15-JUL-16	18-JUL-16	R3506759
Chrysene	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
Dibenzo(a,h)anthracene	<0.000050	DLM	0.000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Fluoranthene	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
Fluorene	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
Indeno(1,2,3-cd)pyrene	<0.00010	DLM	0.00010	mg/L	15-JUL-16	18-JUL-16	R3506759
Naphthalene	<0.00050	DLM	0.00050	mg/L	15-JUL-16	18-JUL-16	R3506759
Phenanthrene	<0.00050	DLM	0.00050	mg/L	15-JUL-16	18-JUL-16	R3506759
Pyrene	<0.00010	DLM	0.00010	mg/L	15-JUL-16	18-JUL-16	R3506759
Quinoline	<0.00020	DLM	0.00020	mg/L	15-JUL-16	18-JUL-16	R3506759
B(a)P Total Potency Equivalent	<0.000072		0.000072	mg/L	15-JUL-16	18-JUL-16	R3506759
Surrogate: Acenaphthene d10	88.1		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Acridine d9	100.9		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Chrysene d12	100.4		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Naphthalene d8	91.7		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Phenanthrene d10	100.9		40-130	%	15-JUL-16	18-JUL-16	R3506759
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	429		1.2	mg/L		20-JUL-16	
Alkalinity, Carbonate							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1798407-1 ARV-2							
Sampled By: LAURA on 12-JUL-16 @ 13:40							
Matrix: EFF							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		20-JUL-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-JUL-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	352		1.0	mg/L		18-JUL-16	R3507037
Ammonia by colour							
Ammonia, Total (as N)	6.16		0.20	mg/L		21-JUL-16	R3509741
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	31.8		6.0	mg/L		15-JUL-16	R3509408
Carbonaceous BOD							
BOD Carbonaceous	21.4		6.0	mg/L		15-JUL-16	R3509408
Chloride in Water by IC							
Chloride (Cl)	450		10	mg/L		15-JUL-16	R3505903
Conductivity							
Conductivity	2670		1.0	umhos/cm		18-JUL-16	R3507037
Fecal Coliform							
Fecal Coliforms	23	PEHT	3	MPN/100mL		14-JUL-16	R3506568
Hardness Calculated							
Hardness (as CaCO3)	791		0.30	mg/L		22-JUL-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	15-JUL-16	15-JUL-16	R3504411
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLM	0.40	mg/L		15-JUL-16	R3505903
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.45		0.45	mg/L		18-JUL-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		15-JUL-16	R3505903
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		15-JUL-16	R3508748
Phenol (4AAP)							
Phenols (4AAP)	0.0043		0.0010	mg/L		21-JUL-16	R3508711
Phosphorus, Total							
Phosphorus (P)-Total	0.704		0.010	mg/L		22-JUL-16	R3509889
Sulfate in Water by IC							
Sulfate (SO4)	445		6.0	mg/L		15-JUL-16	R3505903
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0425		0.0050	mg/L	21-JUL-16	21-JUL-16	R3509194
Arsenic (As)-Total	0.00459		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Cadmium (Cd)-Total	0.000082		0.000010	mg/L	21-JUL-16	21-JUL-16	R3509194
Calcium (Ca)-Total	217		0.10	mg/L	21-JUL-16	21-JUL-16	R3509194
Chromium (Cr)-Total	0.0018		0.0010	mg/L	21-JUL-16	21-JUL-16	R3509194
Cobalt (Co)-Total	0.00128		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Copper (Cu)-Total	0.0164		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Iron (Fe)-Total	1.43		0.010	mg/L	21-JUL-16	21-JUL-16	R3509194
Lead (Pb)-Total	0.00250		0.000090	mg/L	21-JUL-16	21-JUL-16	R3509194
Magnesium (Mg)-Total	60.6		0.010	mg/L	21-JUL-16	21-JUL-16	R3509194
Manganese (Mn)-Total	0.547		0.00030	mg/L	21-JUL-16	21-JUL-16	R3509194
Nickel (Ni)-Total	0.0074		0.0020	mg/L	21-JUL-16	21-JUL-16	R3509194
Potassium (K)-Total	67.6		0.020	mg/L	21-JUL-16	21-JUL-16	R3509194
Sodium (Na)-Total	305		0.030	mg/L	21-JUL-16	21-JUL-16	R3509194
Zinc (Zn)-Total	0.0436		0.0020	mg/L	21-JUL-16	21-JUL-16	R3509194
Total Organic Carbon by Combustion							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1798407-1 ARV-2							
Sampled By: LAURA on 12-JUL-16 @ 13:40							
Matrix: EFF							
Total Organic Carbon by Combustion							
Total Organic Carbon	56.0		0.50	mg/L		21-JUL-16	R3511779
Total Suspended Solids							
Total Suspended Solids	98		13	mg/L		15-JUL-16	R3505696
pH							
pH	7.56		0.10	pH units		18-JUL-16	R3507037
L1798407-2 ARV-4							
Sampled By: LAURA on 12-JUL-16 @ 13:27							
Matrix: EFF							
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Acenaphthene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Acenaphthylene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Anthracene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Acridine	<0.000050	DLM	0.000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(a)anthracene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Chrysene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Fluoranthene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Fluorene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Naphthalene	<0.000050		0.000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Phenanthrene	<0.000050		0.000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Pyrene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Quinoline	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	15-JUL-16	18-JUL-16	R3506759
Surrogate: Acenaphthene d10	88.6		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Acridine d9	89.6		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Chrysene d12	89.0		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Naphthalene d8	88.9		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Phenanthrene d10	89.6		40-130	%	15-JUL-16	18-JUL-16	R3506759
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	238		1.2	mg/L		20-JUL-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		20-JUL-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-JUL-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	195		1.0	mg/L		18-JUL-16	R3507037
Ammonia by colour							
Ammonia, Total (as N)	25.2		2.0	mg/L		21-JUL-16	R3509741
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	34.6		6.0	mg/L		15-JUL-16	R3509408
Carbonaceous BOD							
BOD Carbonaceous	20.6		6.0	mg/L		15-JUL-16	R3509408
Chloride in Water by IC							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1798407-2 ARV-4							
Sampled By: LAURA on 12-JUL-16 @ 13:27							
Matrix: EFF							
Chloride in Water by IC							
Chloride (Cl)	291		2.5	mg/L		15-JUL-16	R3505903
Conductivity							
Conductivity	1370		1.0	umhos/cm		18-JUL-16	R3507037
Fecal Coliform							
Fecal Coliforms	430	PEHT	3	MPN/100mL		14-JUL-16	R3506568
Hardness Calculated							
Hardness (as CaCO3)	174		0.30	mg/L		22-JUL-16	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	15-JUL-16	15-JUL-16	R3504411
Nitrate in Water by IC							
Nitrate (as N)	<0.10	DLM	0.10	mg/L		15-JUL-16	R3505903
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.11		0.11	mg/L		18-JUL-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.050	DLM	0.050	mg/L		15-JUL-16	R3505903
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		15-JUL-16	R3508748
Phenol (4AAP)							
Phenols (4AAP)	0.0018		0.0010	mg/L		21-JUL-16	R3508711
Phosphorus, Total							
Phosphorus (P)-Total	4.60		0.010	mg/L		22-JUL-16	R3509889
Sulfate in Water by IC							
Sulfate (SO4)	14.6		1.5	mg/L		15-JUL-16	R3505903
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.138		0.0050	mg/L	21-JUL-16	21-JUL-16	R3509194
Arsenic (As)-Total	0.00665		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Cadmium (Cd)-Total	0.000059		0.000010	mg/L	21-JUL-16	21-JUL-16	R3509194
Calcium (Ca)-Total	31.5		0.10	mg/L	21-JUL-16	21-JUL-16	R3509194
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	21-JUL-16	21-JUL-16	R3509194
Cobalt (Co)-Total	0.00286		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Copper (Cu)-Total	0.0213		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Iron (Fe)-Total	4.80		0.010	mg/L	21-JUL-16	21-JUL-16	R3509194
Lead (Pb)-Total	0.000972		0.000090	mg/L	21-JUL-16	21-JUL-16	R3509194
Magnesium (Mg)-Total	23.1		0.010	mg/L	21-JUL-16	21-JUL-16	R3509194
Manganese (Mn)-Total	0.622		0.00030	mg/L	21-JUL-16	21-JUL-16	R3509194
Nickel (Ni)-Total	0.0076		0.0020	mg/L	21-JUL-16	21-JUL-16	R3509194
Potassium (K)-Total	27.3		0.020	mg/L	21-JUL-16	21-JUL-16	R3509194
Sodium (Na)-Total	175		0.030	mg/L	21-JUL-16	21-JUL-16	R3509194
Zinc (Zn)-Total	0.0141		0.0020	mg/L	21-JUL-16	21-JUL-16	R3509194
Total Organic Carbon by Combustion							
Total Organic Carbon	37.5		0.50	mg/L		21-JUL-16	R3511779
Total Suspended Solids							
Total Suspended Solids	73		13	mg/L		15-JUL-16	R3505696
pH							
pH	7.24		0.10	pH units		18-JUL-16	R3507037
L1798407-3 ARV-5							
Sampled By: LAURA on 12-JUL-16 @ 13:51							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		20-JUL-16	R3509938
Toluene	<0.0010		0.0010	mg/L		20-JUL-16	R3509938

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1798407-3 ARV-5							
Sampled By: LAURA on 12-JUL-16 @ 13:51							
Matrix: EFF							
BTX plus F1 by GCMS							
Ethyl benzene	<0.00050		0.00050	mg/L		20-JUL-16	R3509938
o-Xylene	<0.00050		0.00050	mg/L		20-JUL-16	R3509938
m+p-Xylenes	<0.00050		0.00050	mg/L		20-JUL-16	R3509938
F1 (C6-C10)	<0.10		0.10	mg/L		20-JUL-16	R3509938
Surrogate: 4-Bromofluorobenzene (SS)	101.7		70-130	%		20-JUL-16	R3509938
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-JUL-16	15-JUL-16	R3504549
F3 (C16-C34)	<0.25		0.25	mg/L	15-JUL-16	15-JUL-16	R3504549
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUL-16	15-JUL-16	R3504549
Surrogate: 2-Bromobenzotrifluoride	100.8		60-140	%	15-JUL-16	15-JUL-16	R3504549
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		22-JUL-16	
F2-Naphth	<0.10		0.10	mg/L		22-JUL-16	
F3-PAH	<0.25		0.25	mg/L		22-JUL-16	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		22-JUL-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		22-JUL-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Acenaphthene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Acenaphthylene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Anthracene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Acridine	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(a)anthracene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Chrysene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Fluoranthene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Fluorene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Naphthalene	<0.000050		0.000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Phenanthrene	<0.000050		0.000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Pyrene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Quinoline	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	15-JUL-16	18-JUL-16	R3506759
Surrogate: Acenaphthene d10	91.7		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Acridine d9	91.6		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Chrysene d12	94.1		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Naphthalene d8	95.7		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Phenanthrene d10	91.6		40-130	%	15-JUL-16	18-JUL-16	R3506759
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	73.2		1.2	mg/L		20-JUL-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		20-JUL-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-JUL-16	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1798407-3 ARV-5							
Sampled By: LAURA on 12-JUL-16 @ 13:51							
Matrix: EFF							
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	60.0		1.0	mg/L		18-JUL-16	R3507037
Ammonia by colour							
Ammonia, Total (as N)	0.029		0.010	mg/L		20-JUL-16	R3508782
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	3.1		2.0	mg/L		15-JUL-16	R3509408
Carbonaceous BOD							
BOD Carbonaceous	3.0		2.0	mg/L		15-JUL-16	R3509408
Chloride in Water by IC							
Chloride (Cl)	846		10	mg/L		15-JUL-16	R3505903
Conductivity							
Conductivity	2670		1.0	umhos/cm		18-JUL-16	R3507037
Fecal Coliform							
Fecal Coliforms	<3	PEHT	3	MPN/100mL		14-JUL-16	R3506568
Hardness Calculated							
Hardness (as CaCO3)	399		0.30	mg/L		22-JUL-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	15-JUL-16	15-JUL-16	R3504411
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLM	0.40	mg/L		15-JUL-16	R3505903
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.45		0.45	mg/L		18-JUL-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		15-JUL-16	R3505903
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		15-JUL-16	R3508748
Phenol (4AAP)							
Phenols (4AAP)	0.0038		0.0010	mg/L		21-JUL-16	R3508711
Phosphorus, Total							
Phosphorus (P)-Total	0.170		0.010	mg/L		22-JUL-16	R3509889
Sulfate in Water by IC							
Sulfate (SO4)	30.4	DLM	6.0	mg/L		15-JUL-16	R3505903
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.463		0.0050	mg/L	21-JUL-16	21-JUL-16	R3509194
Arsenic (As)-Total	0.00085		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Cadmium (Cd)-Total	0.000016		0.000010	mg/L	21-JUL-16	21-JUL-16	R3509194
Calcium (Ca)-Total	47.0		0.10	mg/L	21-JUL-16	21-JUL-16	R3509194
Chromium (Cr)-Total	0.0014		0.0010	mg/L	21-JUL-16	21-JUL-16	R3509194
Cobalt (Co)-Total	0.00057		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Copper (Cu)-Total	0.00152		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Iron (Fe)-Total	7.56		0.010	mg/L	21-JUL-16	21-JUL-16	R3509194
Lead (Pb)-Total	0.000611		0.000090	mg/L	21-JUL-16	21-JUL-16	R3509194
Magnesium (Mg)-Total	68.5		0.010	mg/L	21-JUL-16	21-JUL-16	R3509194
Manganese (Mn)-Total	0.260		0.00030	mg/L	21-JUL-16	21-JUL-16	R3509194
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	21-JUL-16	21-JUL-16	R3509194
Potassium (K)-Total	14.0		0.020	mg/L	21-JUL-16	21-JUL-16	R3509194
Sodium (Na)-Total	430		0.030	mg/L	21-JUL-16	21-JUL-16	R3509194
Zinc (Zn)-Total	0.0113		0.0020	mg/L	21-JUL-16	21-JUL-16	R3509194
Total Organic Carbon by Combustion							
Total Organic Carbon	7.52		0.50	mg/L		21-JUL-16	R3511779
Total Suspended Solids							
Total Suspended Solids	53.8		6.3	mg/L		15-JUL-16	R3505696
pH							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1798407-3 ARV-5							
Sampled By: LAURA on 12-JUL-16 @ 13:51							
Matrix: EFF							
pH							
pH	7.53		0.10	pH units		18-JUL-16	R3507037
L1798407-4 ARV-6							
Sampled By: LAURA on 12-JUL-16 @ 14:01							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		20-JUL-16	R3509938
Toluene	0.0023	EMPC	0.0010	mg/L		20-JUL-16	R3509938
Ethyl benzene	0.00077		0.00050	mg/L		20-JUL-16	R3509938
o-Xylene	0.00216		0.00050	mg/L		20-JUL-16	R3509938
m+p-Xylenes	0.00267		0.00050	mg/L		20-JUL-16	R3509938
F1 (C6-C10)	0.10		0.10	mg/L		20-JUL-16	R3509938
Surrogate: 4-Bromofluorobenzene (SS)	118.8		70-130	%		20-JUL-16	R3509938
CCME PHC F2-F4 in Water							
F2 (C10-C16)	2.47		0.10	mg/L	15-JUL-16	15-JUL-16	R3504549
F3 (C16-C34)	13.9		0.25	mg/L	15-JUL-16	15-JUL-16	R3504549
F4 (C34-C50)	0.72		0.25	mg/L	15-JUL-16	15-JUL-16	R3504549
Surrogate: 2-Bromobenzotrifluoride	102.2		60-140	%	15-JUL-16	15-JUL-16	R3504549
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		22-JUL-16	
F2-Naphth	2.47		0.10	mg/L		22-JUL-16	
F3-PAH	13.9		0.25	mg/L		22-JUL-16	
Total Hydrocarbons (C6-C50)	17.2		0.38	mg/L		22-JUL-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	0.0048		0.0015	mg/L		22-JUL-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Acenaphthene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Acenaphthylene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Anthracene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Acridine	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(a)anthracene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Chrysene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Fluoranthene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Fluorene	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Naphthalene	<0.000050		0.000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Phenanthrene	<0.000050		0.000050	mg/L	15-JUL-16	18-JUL-16	R3506759
Pyrene	<0.000010		0.000010	mg/L	15-JUL-16	18-JUL-16	R3506759
Quinoline	<0.000020		0.000020	mg/L	15-JUL-16	18-JUL-16	R3506759
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	15-JUL-16	18-JUL-16	R3506759
Surrogate: Acenaphthene d10	90.9		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Acridine d9	92.2		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Chrysene d12	96.9		40-130	%	15-JUL-16	18-JUL-16	R3506759

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1798407-4 ARV-6							
Sampled By: LAURA on 12-JUL-16 @ 14:01							
Matrix: EFF							
Polyaromatic Hydrocarbons (PAHs)							
Surrogate: Naphthalene d8	93.8		40-130	%	15-JUL-16	18-JUL-16	R3506759
Surrogate: Phenanthrene d10	92.2		40-130	%	15-JUL-16	18-JUL-16	R3506759
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	112		1.2	mg/L		20-JUL-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		20-JUL-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		20-JUL-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	91.5		1.0	mg/L		18-JUL-16	R3507037
Ammonia by colour							
Ammonia, Total (as N)	0.425		0.010	mg/L		21-JUL-16	R3509741
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	7.3		2.0	mg/L		15-JUL-16	R3509408
Carbonaceous BOD							
BOD Carbonaceous	4.7		2.0	mg/L		15-JUL-16	R3509408
Chloride in Water by IC							
Chloride (Cl)	159		0.50	mg/L		15-JUL-16	R3505903
Conductivity							
Conductivity	685		1.0	umhos/cm		18-JUL-16	R3507037
Fecal Coliform							
Fecal Coliforms	<3	PEHT	3	MPN/100mL		14-JUL-16	R3506568
Hardness Calculated							
Hardness (as CaCO3)	205		0.30	mg/L		25-JUL-16	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	15-JUL-16	15-JUL-16	R3504411
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		15-JUL-16	R3505903
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		18-JUL-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		15-JUL-16	R3505903
Oil & Grease - Gravimetric							
Oil and Grease	33.0		5.0	mg/L		15-JUL-16	R3508748
Phenol (4AAP)							
Phenols (4AAP)	0.0036		0.0010	mg/L		21-JUL-16	R3508711
Phosphorus, Total							
Phosphorus (P)-Total	0.119		0.010	mg/L		22-JUL-16	R3509889
Sulfate in Water by IC							
Sulfate (SO4)	<0.30		0.30	mg/L		15-JUL-16	R3505903
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.995		0.0050	mg/L	21-JUL-16	21-JUL-16	R3509194
Arsenic (As)-Total	0.00156		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Cadmium (Cd)-Total	0.000089		0.000010	mg/L	21-JUL-16	21-JUL-16	R3509194
Calcium (Ca)-Total	58.2		0.10	mg/L	21-JUL-16	21-JUL-16	R3509194
Chromium (Cr)-Total	0.0032		0.0010	mg/L	21-JUL-16	21-JUL-16	R3509194
Cobalt (Co)-Total	0.00384		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Copper (Cu)-Total	0.00601		0.00020	mg/L	21-JUL-16	21-JUL-16	R3509194
Iron (Fe)-Total	59.7		0.010	mg/L	21-JUL-16	21-JUL-16	R3509194
Lead (Pb)-Total	0.00153		0.000090	mg/L	21-JUL-16	21-JUL-16	R3509194
Magnesium (Mg)-Total	14.6		0.010	mg/L	21-JUL-16	21-JUL-16	R3509194

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1798407-4 ARV-6							
Sampled By: LAURA on 12-JUL-16 @ 14:01							
Matrix: EFF							
Total Metals by ICP-MS							
Manganese (Mn)-Total	2.85		0.030	mg/L	21-JUL-16	22-JUL-16	R3510655
Nickel (Ni)-Total	0.0026		0.0020	mg/L	21-JUL-16	21-JUL-16	R3509194
Potassium (K)-Total	6.67		0.020	mg/L	21-JUL-16	21-JUL-16	R3509194
Sodium (Na)-Total	66.4		0.030	mg/L	21-JUL-16	21-JUL-16	R3509194
Zinc (Zn)-Total	0.0335		0.0020	mg/L	21-JUL-16	21-JUL-16	R3509194
Total Organic Carbon by Combustion							
Total Organic Carbon	16.0		0.50	mg/L		21-JUL-16	R3511779
Total Suspended Solids							
Total Suspended Solids	144		20	mg/L		15-JUL-16	R3505696
pH							
pH	6.45		0.10	pH units		18-JUL-16	R3507037

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B
Samples are diluted and seeded, have TCMP added to inhibit nitrogenous demands, and then are incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B
Samples are diluted and seeded and then incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A
The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.			
C-TOC-HTC-WP	Water	Total Organic Carbon by Combustion	APHA 5310 B-WP
Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
EC-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.			
ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
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			

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.

FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

The Most Probable Number (MPN) method is based on the Multiple Tube Fermentation technique. Aliquots from three or more decimal dilutions of a sample are inoculated into tubes containing enrichment media and incubated at 35C for 48 – 3 hours. Sample aliquots exhibiting the characteristic positive response are transferred to various selective media for the coliform group(s) of interest and incubated at specific temperatures and times. The Most Probable Number for each target group is statistically derived from a standard MPN table based on the combinations of positive outcomes at each dilution.
The fecal (thermotolerant) coliform group may include organisms not originating in the intestines of warm-blooded animals.

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
red complex which is measured colorimetrically.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

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

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

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

Chain of Custody Numbers:

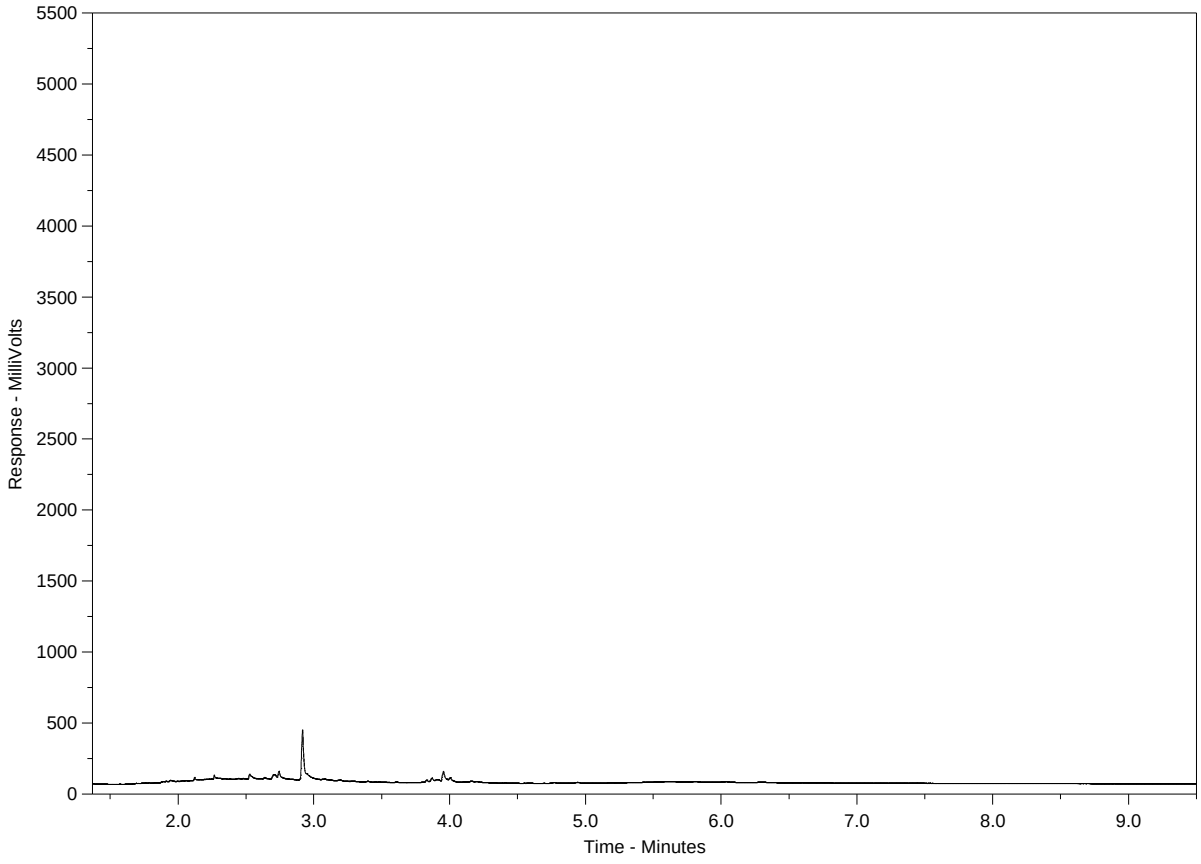
GLOSSARY OF REPORT TERMS

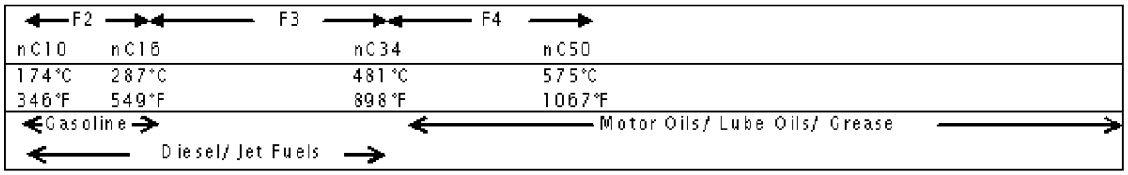
Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates 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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1798407-1
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.

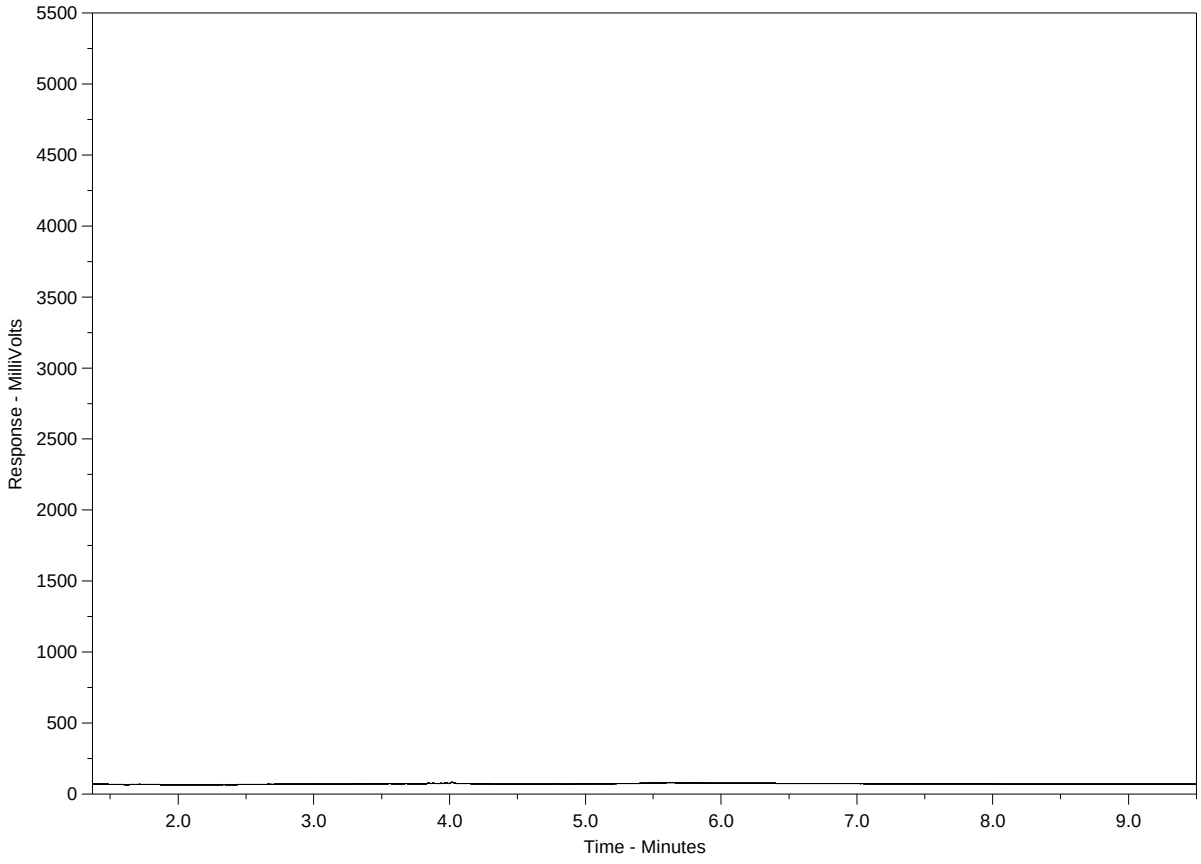
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

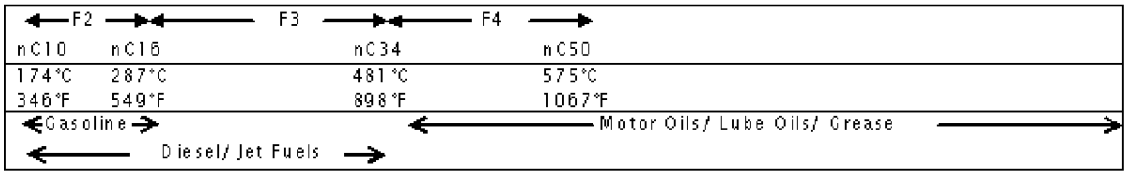
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1798407-3
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.

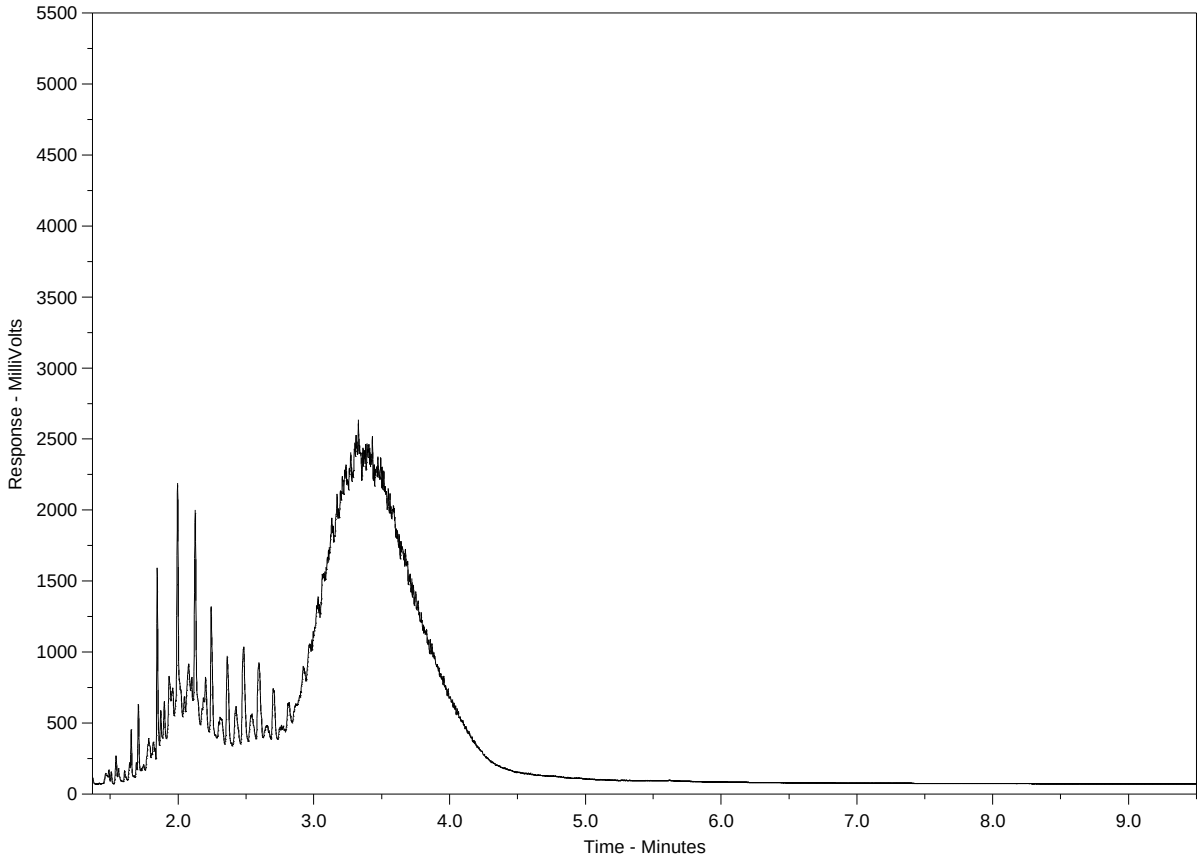
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

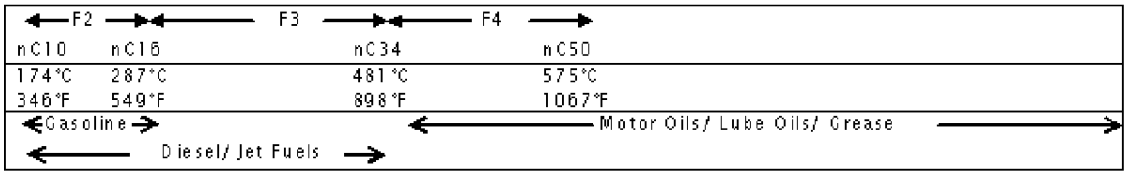
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1798407-4
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.

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

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1798407-COFC

COC Number: 15 - 571746

Page 1 of

Report To	Contact and company name below will appear on the final report	Report Format / D	Service Level below - Please confirm all E&P TATs with your AM - surcharges will apply
Company:	HAMLET OF ARVIAT	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	STEVE ENGLAND	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4] ☐ / 3 day [P3] ☐ / 2 day [P2] ☐ — EMERGENCY: 1 Business day [E1] ☐ / Same Day, Weekend or Statutory holiday [E0] ☐
Phone:	867-857-2841	☐ Compare Results to Criteria on Report - provide details below if box checked	
Company address below will appear on the final report		Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Street		Email 1 or Fax arviatsao@qiniq.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	ARVIAT, NUNAVUT	Email 2 mlusty@gov.nu.ca	Analysis Request
Postal Code:	X0C-0E0	Email 3	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Invoice To	Same as Report To ☒ YES ☐ NO	Invoice Distribution	
	Copy of Invoice with Report ☐ YES ☒ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Routine	BOD	Nitric Acid	Bacteria	Mercury	Oil & Grease	Sulfuric Acid	Phenols	Sodium x 2	BTEX/VOC-3	Number of Containers
	ARV-2	12-07-16	11:40m	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	ARV-4	12-07-16	12:20m	EFF	✓	✓	✓	✓	✓	✓	✓	✓			
	ARV-5	12-07-16	15:10m	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	ARV-6	12-07-16	20:10m	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO		Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human drinking water use? ☐ YES ☐ NO		Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐ Cooling Initiated ☐
		INITIAL COOLER TEMPERATURES °C / FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	July 12 2016			07/14/16	12:30			

14.5°C

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

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

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

Hamlet of Arviat
ATTN: STEVE ENGLAND
PO Box 150
Arviat NU X0C 0E0

Date Received: 27-AUG-16
Report Date: 09-SEP-16 08:46 (MT)
Version: FINAL

Client Phone: 867-857-2841

Certificate of Analysis

Lab Work Order #: L1820134

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

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1820134-1 ARV-2							
Sampled By: CLIENT on 25-AUG-16 @ 10:49							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
Toluene	<0.0010		0.0010	mg/L		29-AUG-16	R3537764
Ethyl benzene	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
o-Xylene	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
m+p-Xylenes	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
F1 (C6-C10)	<0.10		0.10	mg/L		29-AUG-16	R3537764
Surrogate: 4-Bromofluorobenzene (SS)	98.3		70-130	%		29-AUG-16	R3537764
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.13		0.10	mg/L	29-AUG-16	29-AUG-16	R3536726
F3 (C16-C34)	0.47		0.25	mg/L	29-AUG-16	29-AUG-16	R3536726
F4 (C34-C50)	<0.25		0.25	mg/L	29-AUG-16	29-AUG-16	R3536726
Surrogate: 2-Bromobenzotrifluoride	92.7		60-140	%	29-AUG-16	29-AUG-16	R3536726
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		08-SEP-16	
F2-Naphth	0.13		0.10	mg/L		08-SEP-16	
F3-PAH	0.47		0.25	mg/L		08-SEP-16	
Total Hydrocarbons (C6-C50)	0.60		0.38	mg/L		08-SEP-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		31-AUG-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Acenaphthene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Acenaphthylene	0.000022		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Anthracene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Acridine	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(a)anthracene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Chrysene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Fluoranthene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Fluorene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Naphthalene	<0.000050		0.000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Phenanthrene	<0.000050		0.000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Pyrene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Quinoline	0.000035		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	01-SEP-16	06-SEP-16	R3543410
Surrogate: Acenaphthene d10	81.3		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Acridine d9	114.0		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Chrysene d12	88.8		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Naphthalene d8	81.7		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Phenanthrene d10	84.2		40-130	%	01-SEP-16	06-SEP-16	R3543410
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	537		1.2	mg/L		01-SEP-16	
Alkalinity, Carbonate							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1820134-1 ARV-2							
Sampled By: CLIENT on 25-AUG-16 @ 10:49							
Matrix: EFF							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	440		1.0	mg/L		30-AUG-16	R3538902
Ammonia by colour							
Ammonia, Total (as N)	5.0		1.0	mg/L		02-SEP-16	R3540476
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	28.1		6.0	mg/L		27-AUG-16	R3539943
Carbonaceous BOD							
BOD Carbonaceous	25.9		6.0	mg/L		27-AUG-16	R3539943
Chloride in Water by IC							
Chloride (Cl)	399		10	mg/L		29-AUG-16	R3537862
Conductivity							
Conductivity	2790		1.0	umhos/cm		30-AUG-16	R3538902
Fecal Coliform							
Fecal Coliforms	<3		3	MPN/100mL		27-AUG-16	R3538480
Hardness Calculated							
Hardness (as CaCO3)	994		0.30	mg/L		06-SEP-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	31-AUG-16	31-AUG-16	R3538895
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLM	0.40	mg/L		29-AUG-16	R3537862
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.45		0.45	mg/L		31-AUG-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		29-AUG-16	R3537862
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		02-SEP-16	R3542635
Phenol (4AAP)							
Phenols (4AAP)	0.0074		0.0010	mg/L		01-SEP-16	R3539221
Phosphorus, Total							
Phosphorus (P)-Total	0.746		0.010	mg/L		01-SEP-16	R3538987
Sulfate in Water by IC							
Sulfate (SO4)	501		6.0	mg/L		29-AUG-16	R3537862
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0216		0.0050	mg/L	02-SEP-16	02-SEP-16	R3541393
Arsenic (As)-Total	0.00596		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Cadmium (Cd)-Total	0.000061		0.000010	mg/L	02-SEP-16	02-SEP-16	R3541393
Calcium (Ca)-Total	297		0.10	mg/L	02-SEP-16	02-SEP-16	R3541393
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	02-SEP-16	02-SEP-16	R3541393
Cobalt (Co)-Total	0.00096		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Copper (Cu)-Total	0.00779		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Iron (Fe)-Total	0.995		0.010	mg/L	02-SEP-16	02-SEP-16	R3541393
Lead (Pb)-Total	0.000813		0.000090	mg/L	02-SEP-16	02-SEP-16	R3541393
Magnesium (Mg)-Total	61.5		0.010	mg/L	02-SEP-16	02-SEP-16	R3541393
Manganese (Mn)-Total	0.550		0.00030	mg/L	02-SEP-16	02-SEP-16	R3541393
Nickel (Ni)-Total	0.0074		0.0020	mg/L	02-SEP-16	02-SEP-16	R3541393
Potassium (K)-Total	55.8		0.020	mg/L	02-SEP-16	02-SEP-16	R3541393
Sodium (Na)-Total	281		0.030	mg/L	02-SEP-16	02-SEP-16	R3541393
Zinc (Zn)-Total	0.0219		0.0020	mg/L	02-SEP-16	02-SEP-16	R3541393
Total Organic Carbon by Combustion							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1820134-1 ARV-2							
Sampled By: CLIENT on 25-AUG-16 @ 10:49							
Matrix: EFF							
Total Organic Carbon by Combustion							
Total Organic Carbon	46.3		0.50	mg/L		01-SEP-16	R3539363
Total Suspended Solids							
Total Suspended Solids	143		13	mg/L		31-AUG-16	R3539338
pH							
pH	7.89		0.10	pH units		30-AUG-16	R3538902
L1820134-2 ARV-4							
Sampled By: CLIENT on 25-AUG-16 @ 10:26							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
Toluene	<0.0010		0.0010	mg/L		29-AUG-16	R3537764
Ethyl benzene	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
o-Xylene	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
m+p-Xylenes	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
F1 (C6-C10)	<0.10		0.10	mg/L		29-AUG-16	R3537764
Surrogate: 4-Bromofluorobenzene (SS)	99.2		70-130	%		29-AUG-16	R3537764
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	29-AUG-16	29-AUG-16	R3536726
F3 (C16-C34)	<0.25		0.25	mg/L	29-AUG-16	29-AUG-16	R3536726
F4 (C34-C50)	<0.25		0.25	mg/L	29-AUG-16	29-AUG-16	R3536726
Surrogate: 2-Bromobenzotrifluoride	94.0		60-140	%	29-AUG-16	29-AUG-16	R3536726
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		31-AUG-16	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		31-AUG-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		31-AUG-16	
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	206		1.2	mg/L		01-SEP-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	169		1.0	mg/L		30-AUG-16	R3538902
Ammonia by colour							
Ammonia, Total (as N)	17.0		0.50	mg/L		02-SEP-16	R3540476
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<6.0		6.0	mg/L		27-AUG-16	R3539943
Carbonaceous BOD							
BOD Carbonaceous	2.4		2.0	mg/L		27-AUG-16	R3539943
Chloride in Water by IC							
Chloride (Cl)	381		2.5	mg/L		29-AUG-16	R3537862
Conductivity							
Conductivity	1640		1.0	umhos/cm		30-AUG-16	R3538902
Fecal Coliform							
Fecal Coliforms	93		3	MPN/100mL		27-AUG-16	R3538480
Hardness Calculated							
Hardness (as CaCO3)	204		0.30	mg/L		06-SEP-16	
Mercury Total							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1820134-2 ARV-4							
Sampled By: CLIENT on 25-AUG-16 @ 10:26							
Matrix: EFF							
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	31-AUG-16	31-AUG-16	R3538895
Nitrate in Water by IC							
Nitrate (as N)	0.41	DLM	0.10	mg/L		29-AUG-16	R3537862
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.47		0.11	mg/L		31-AUG-16	
Nitrite in Water by IC							
Nitrite (as N)	0.061	DLM	0.050	mg/L		29-AUG-16	R3537862
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		02-SEP-16	R3542635
Phenol (4AAP)							
Phenols (4AAP)	0.0052		0.0010	mg/L		01-SEP-16	R3539221
Phosphorus, Total							
Phosphorus (P)-Total	4.12		0.010	mg/L		01-SEP-16	R3538987
Sulfate in Water by IC							
Sulfate (SO4)	21.6		1.5	mg/L		29-AUG-16	R3537862
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0436		0.0050	mg/L	02-SEP-16	02-SEP-16	R3541393
Arsenic (As)-Total	0.00443		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Cadmium (Cd)-Total	0.000010		0.000010	mg/L	02-SEP-16	02-SEP-16	R3541393
Calcium (Ca)-Total	36.0		0.10	mg/L	02-SEP-16	02-SEP-16	R3541393
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	02-SEP-16	02-SEP-16	R3541393
Cobalt (Co)-Total	0.00255		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Copper (Cu)-Total	0.00309		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Iron (Fe)-Total	2.21		0.010	mg/L	02-SEP-16	02-SEP-16	R3541393
Lead (Pb)-Total	0.000151		0.000090	mg/L	02-SEP-16	02-SEP-16	R3541393
Magnesium (Mg)-Total	27.7		0.010	mg/L	02-SEP-16	02-SEP-16	R3541393
Manganese (Mn)-Total	0.817		0.00030	mg/L	02-SEP-16	02-SEP-16	R3541393
Nickel (Ni)-Total	0.0071		0.0020	mg/L	02-SEP-16	02-SEP-16	R3541393
Potassium (K)-Total	25.3		0.020	mg/L	02-SEP-16	02-SEP-16	R3541393
Sodium (Na)-Total	239		0.030	mg/L	02-SEP-16	02-SEP-16	R3541393
Zinc (Zn)-Total	0.0023		0.0020	mg/L	02-SEP-16	02-SEP-16	R3541393
Total Organic Carbon by Combustion							
Total Organic Carbon	20.0		0.50	mg/L		08-SEP-16	R3544249
Total Suspended Solids							
Total Suspended Solids	20		10	mg/L		31-AUG-16	R3539338
pH							
pH	7.32		0.10	pH units		30-AUG-16	R3538902
L1820134-3 ARV-5							
Sampled By: CLIENT on 25-AUG-16 @ 11:06							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		30-AUG-16	R3537764
Toluene	<0.0010		0.0010	mg/L		30-AUG-16	R3537764
Ethyl benzene	<0.00050		0.00050	mg/L		30-AUG-16	R3537764
o-Xylene	<0.00050		0.00050	mg/L		30-AUG-16	R3537764
m+p-Xylenes	<0.00050		0.00050	mg/L		30-AUG-16	R3537764
F1 (C6-C10)	<0.10		0.10	mg/L		30-AUG-16	R3537764
Surrogate: 4-Bromofluorobenzene (SS)	118.5		70-130	%		30-AUG-16	R3537764
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	29-AUG-16	29-AUG-16	R3536726
F3 (C16-C34)	<0.25		0.25	mg/L	29-AUG-16	29-AUG-16	R3536726

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1820134-3 ARV-5							
Sampled By: CLIENT on 25-AUG-16 @ 11:06							
Matrix: EFF							
CCME PHC F2-F4 in Water							
F4 (C34-C50)	<0.25		0.25	mg/L	29-AUG-16	29-AUG-16	R3536726
Surrogate: 2-Bromobenzotrifluoride	93.9		60-140	%	29-AUG-16	29-AUG-16	R3536726
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		08-SEP-16	
F2-Naphth	<0.10		0.10	mg/L		08-SEP-16	
F3-PAH	<0.25		0.25	mg/L		08-SEP-16	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		08-SEP-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		31-AUG-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Acenaphthene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Acenaphthylene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Anthracene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Acridine	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(a)anthracene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Chrysene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Fluoranthene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Fluorene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Naphthalene	<0.000050		0.000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Phenanthrene	<0.000050		0.000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Pyrene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Quinoline	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	01-SEP-16	06-SEP-16	R3543410
Surrogate: Acenaphthene d10	84.6		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Acridine d9	105.5		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Chrysene d12	89.7		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Naphthalene d8	81.1		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Phenanthrene d10	89.7		40-130	%	01-SEP-16	06-SEP-16	R3543410
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	107		1.2	mg/L		01-SEP-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	87.7		1.0	mg/L		30-AUG-16	R3538902
Ammonia by colour							
Ammonia, Total (as N)	0.013		0.010	mg/L		30-AUG-16	R3537825
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		27-AUG-16	R3539943
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		27-AUG-16	R3539943

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1820134-3 ARV-5							
Sampled By: CLIENT on 25-AUG-16 @ 11:06							
Matrix: EFF							
Chloride in Water by IC							
Chloride (Cl)	290		1.0	mg/L		29-AUG-16	R3537862
Conductivity							
Conductivity	1130		1.0	umhos/cm		30-AUG-16	R3538902
Fecal Coliform							
Fecal Coliforms	15		3	MPN/100mL		27-AUG-16	R3538480
Hardness Calculated							
Hardness (as CaCO3)	185		0.30	mg/L		06-SEP-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	31-AUG-16	31-AUG-16	R3538895
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		29-AUG-16	R3537862
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		31-AUG-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		29-AUG-16	R3537862
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		02-SEP-16	R3542635
Phenol (4AAP)							
Phenols (4AAP)	0.0033		0.0010	mg/L		01-SEP-16	R3539221
Phosphorus, Total							
Phosphorus (P)-Total	0.045		0.010	mg/L		01-SEP-16	R3538987
Sulfate in Water by IC							
Sulfate (SO4)	4.90		0.60	mg/L		29-AUG-16	R3537862
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.326		0.0050	mg/L	02-SEP-16	02-SEP-16	R3541393
Arsenic (As)-Total	0.00062		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	02-SEP-16	02-SEP-16	R3541393
Calcium (Ca)-Total	35.0		0.10	mg/L	02-SEP-16	02-SEP-16	R3541393
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	02-SEP-16	02-SEP-16	R3541393
Cobalt (Co)-Total	0.00035		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Copper (Cu)-Total	0.00097		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Iron (Fe)-Total	1.45		0.010	mg/L	02-SEP-16	02-SEP-16	R3541393
Lead (Pb)-Total	0.000358		0.000090	mg/L	02-SEP-16	02-SEP-16	R3541393
Magnesium (Mg)-Total	23.7		0.010	mg/L	02-SEP-16	02-SEP-16	R3541393
Manganese (Mn)-Total	0.0629		0.00030	mg/L	02-SEP-16	02-SEP-16	R3541393
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	02-SEP-16	02-SEP-16	R3541393
Potassium (K)-Total	7.13		0.020	mg/L	02-SEP-16	02-SEP-16	R3541393
Sodium (Na)-Total	149		0.030	mg/L	02-SEP-16	02-SEP-16	R3541393
Zinc (Zn)-Total	0.0056		0.0020	mg/L	02-SEP-16	02-SEP-16	R3541393
Total Organic Carbon by Combustion							
Total Organic Carbon	10.8		0.50	mg/L		01-SEP-16	R3539363
Total Suspended Solids							
Total Suspended Solids	69.0		5.0	mg/L		31-AUG-16	R3539338
pH							
pH	7.65		0.10	pH units		30-AUG-16	R3538902
L1820134-4 ARV-6							
Sampled By: CLIENT on 25-AUG-16 @ 11:22							
Matrix: EFF							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
Toluene	<0.0010		0.0010	mg/L		29-AUG-16	R3537764

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1820134-4 ARV-6							
Sampled By: CLIENT on 25-AUG-16 @ 11:22							
Matrix: EFF							
BTX plus F1 by GCMS							
Ethyl benzene	<0.00050		0.00050	mg/L		29-AUG-16	R3537764
o-Xylene	0.00098		0.00050	mg/L		29-AUG-16	R3537764
m+p-Xylenes	0.00085		0.00050	mg/L		29-AUG-16	R3537764
F1 (C6-C10)	<0.10		0.10	mg/L		29-AUG-16	R3537764
Surrogate: 4-Bromofluorobenzene (SS)	101.4		70-130	%		29-AUG-16	R3537764
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	29-AUG-16	29-AUG-16	R3536726
F3 (C16-C34)	0.32		0.25	mg/L	29-AUG-16	29-AUG-16	R3536726
F4 (C34-C50)	<0.25		0.25	mg/L	29-AUG-16	29-AUG-16	R3536726
Surrogate: 2-Bromobenzotrifluoride	95.4		60-140	%	29-AUG-16	29-AUG-16	R3536726
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		08-SEP-16	
F2-Naphth	<0.10		0.10	mg/L		08-SEP-16	
F3-PAH	0.32		0.25	mg/L		08-SEP-16	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		08-SEP-16	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	0.0018		0.0015	mg/L		31-AUG-16	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	0.000040		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
2-Methyl Naphthalene	0.000032		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Acenaphthene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Acenaphthylene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Anthracene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Acridine	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(a)anthracene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Chrysene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Fluoranthene	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Fluorene	0.000021		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Naphthalene	<0.000050		0.000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Phenanthrene	<0.000050		0.000050	mg/L	01-SEP-16	06-SEP-16	R3543410
Pyrene	<0.000010		0.000010	mg/L	01-SEP-16	06-SEP-16	R3543410
Quinoline	<0.000020		0.000020	mg/L	01-SEP-16	06-SEP-16	R3543410
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	01-SEP-16	06-SEP-16	R3543410
Surrogate: Acenaphthene d10	85.1		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Acridine d9	107.3		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Chrysene d12	93.1		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Naphthalene d8	80.8		40-130	%	01-SEP-16	06-SEP-16	R3543410
Surrogate: Phenanthrene d10	88.5		40-130	%	01-SEP-16	06-SEP-16	R3543410
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	118		1.2	mg/L		01-SEP-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-16	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1820134-4 ARV-6							
Sampled By: CLIENT on 25-AUG-16 @ 11:22							
Matrix: EFF							
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	97.0		1.0	mg/L		30-AUG-16	R3538902
Ammonia by colour							
Ammonia, Total (as N)	0.138		0.010	mg/L		30-AUG-16	R3537825
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	5.1		2.0	mg/L		27-AUG-16	R3539943
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		27-AUG-16	R3539943
Chloride in Water by IC							
Chloride (Cl)	267		1.0	mg/L		29-AUG-16	R3537862
Conductivity							
Conductivity	1070		1.0	umhos/cm		30-AUG-16	R3538902
Fecal Coliform							
Fecal Coliforms	<3		3	MPN/100mL		27-AUG-16	R3538480
Hardness Calculated							
Hardness (as CaCO3)	253		0.30	mg/L		08-SEP-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	31-AUG-16	31-AUG-16	R3538895
Nitrate in Water by IC							
Nitrate (as N)	0.159		0.040	mg/L		29-AUG-16	R3537862
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.159		0.070	mg/L		31-AUG-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		29-AUG-16	R3537862
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		02-SEP-16	R3542635
Phenol (4AAP)							
Phenols (4AAP)	0.0037		0.0010	mg/L		01-SEP-16	R3539221
Phosphorus, Total							
Phosphorus (P)-Total	0.305		0.010	mg/L		01-SEP-16	R3538987
Sulfate in Water by IC							
Sulfate (SO4)	3.22		0.60	mg/L		29-AUG-16	R3537862
Total Metals by ICP-MS							
Aluminum (Al)-Total	1.69		0.0050	mg/L	02-SEP-16	02-SEP-16	R3541393
Arsenic (As)-Total	0.00127		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Cadmium (Cd)-Total	0.000091		0.000010	mg/L	02-SEP-16	02-SEP-16	R3541393
Calcium (Ca)-Total	74.2		0.10	mg/L	02-SEP-16	02-SEP-16	R3541393
Chromium (Cr)-Total	0.0036		0.0010	mg/L	02-SEP-16	02-SEP-16	R3541393
Cobalt (Co)-Total	0.00361		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Copper (Cu)-Total	0.00403		0.00020	mg/L	02-SEP-16	02-SEP-16	R3541393
Iron (Fe)-Total	17.7		0.010	mg/L	02-SEP-16	02-SEP-16	R3541393
Lead (Pb)-Total	0.00198		0.000090	mg/L	02-SEP-16	02-SEP-16	R3541393
Magnesium (Mg)-Total	16.4		0.010	mg/L	02-SEP-16	02-SEP-16	R3541393
Manganese (Mn)-Total	2.48		0.030	mg/L	02-SEP-16	07-SEP-16	R3543240
Nickel (Ni)-Total	0.0039		0.0020	mg/L	02-SEP-16	02-SEP-16	R3541393
Potassium (K)-Total	8.30		0.020	mg/L	02-SEP-16	02-SEP-16	R3541393
Sodium (Na)-Total	71.1		0.030	mg/L	02-SEP-16	02-SEP-16	R3541393
Zinc (Zn)-Total	0.0433		0.0020	mg/L	02-SEP-16	02-SEP-16	R3541393
Total Organic Carbon by Combustion							
Total Organic Carbon	11.0		0.50	mg/L		01-SEP-16	R3539363
Total Suspended Solids							
Total Suspended Solids	228		13	mg/L		31-AUG-16	R3539338
pH							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1820134-4 ARV-6							
Sampled By: CLIENT on 25-AUG-16 @ 11:22							
Matrix: EFF							
pH							
pH	6.87		0.10	pH units		30-AUG-16	R3538902

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

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

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

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

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

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

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

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

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

BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B

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

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

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

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

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

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

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

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

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

EC-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
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.

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.

FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

The Most Probable Number (MPN) method is based on the Multiple Tube Fermentation technique. Aliquots from three or more decimal dilutions of a sample are inoculated into tubes containing enrichment media and incubated at 35C for 48 – 3 hours. Sample aliquots exhibiting the characteristic positive response are transferred to various selective media for the coliform group(s) of interest and incubated at specific temperatures and times. The Most Probable Number for each target group is statistically derived from a standard MPN table based on the combinations of positive outcomes at each dilution.
The fecal (thermotolerant) coliform group may include organisms not originating in the intestines of warm-blooded animals.

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)

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-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

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

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

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

Chain of Custody Numbers:

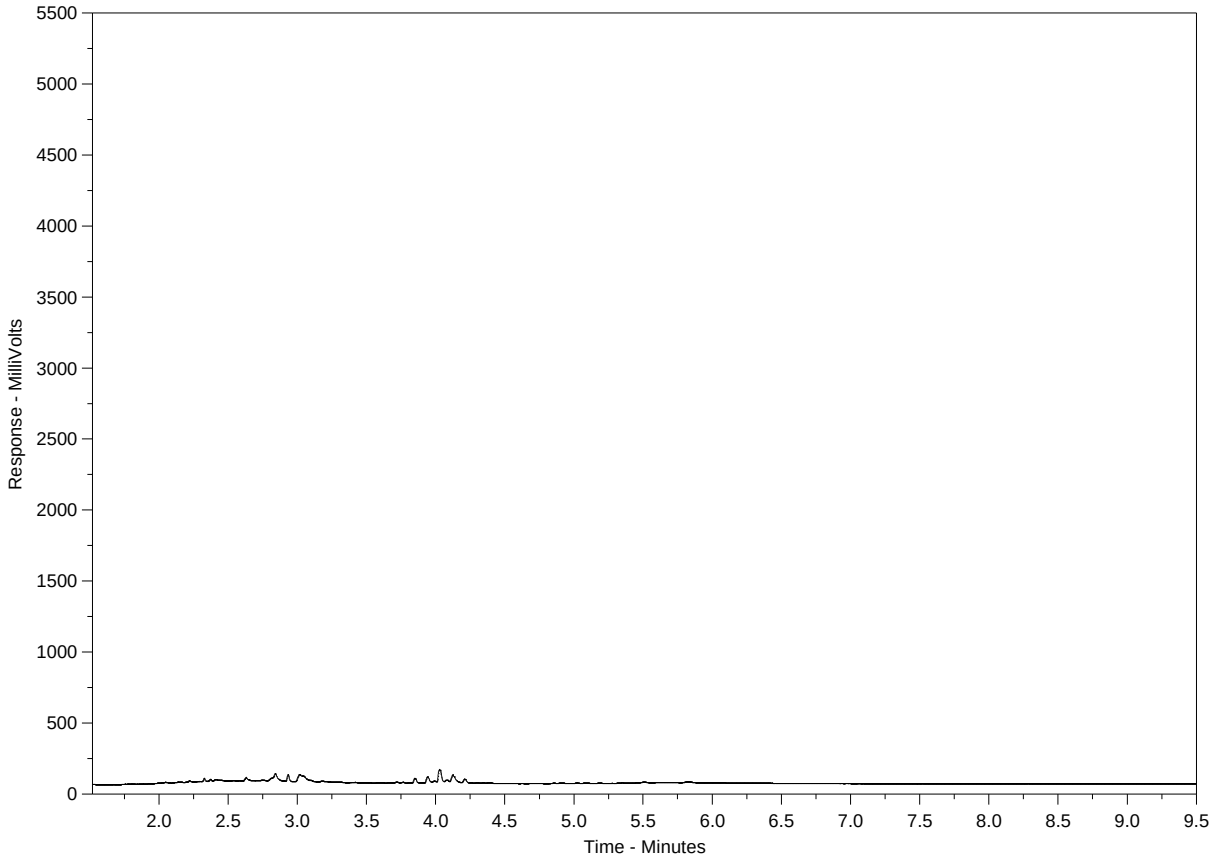
GLOSSARY OF REPORT TERMS

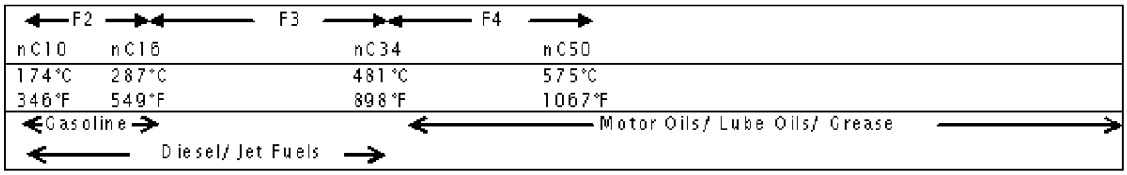
Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates 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.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1820134-1
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.

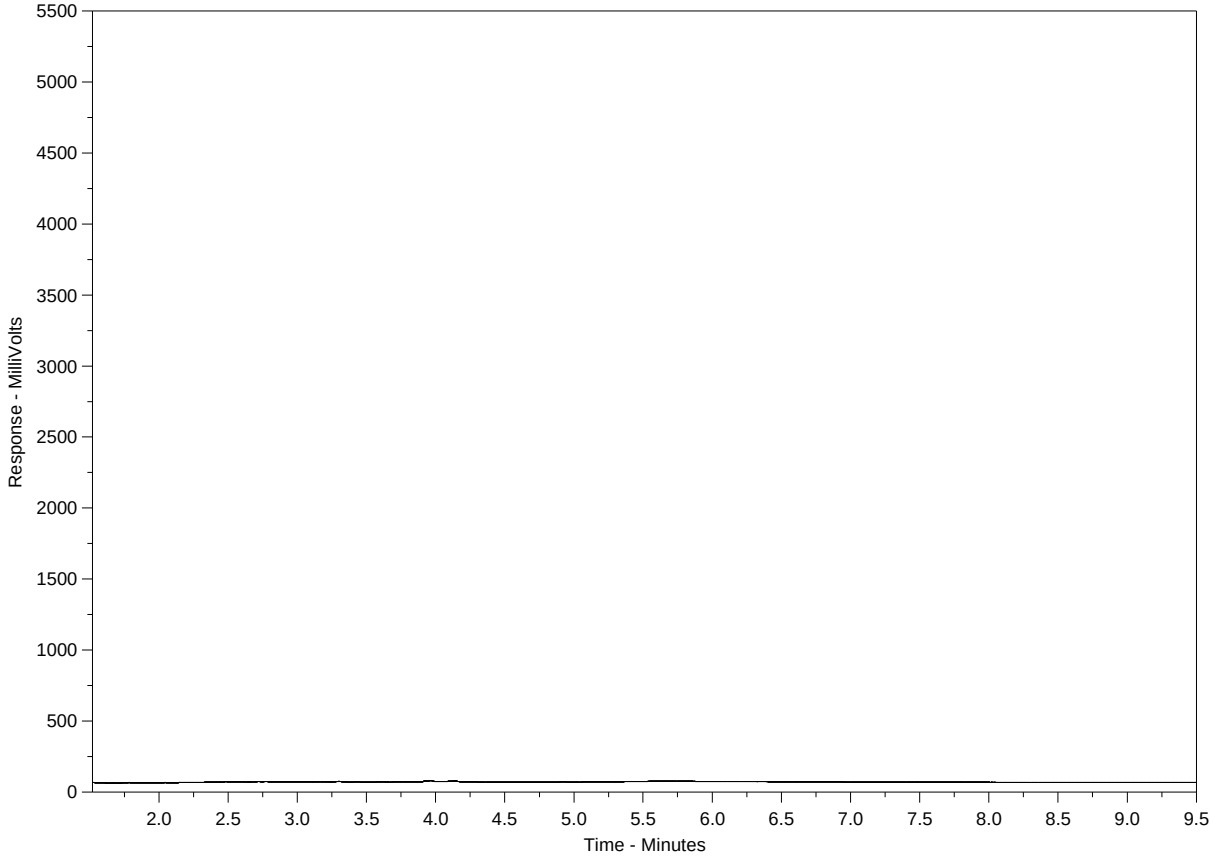
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

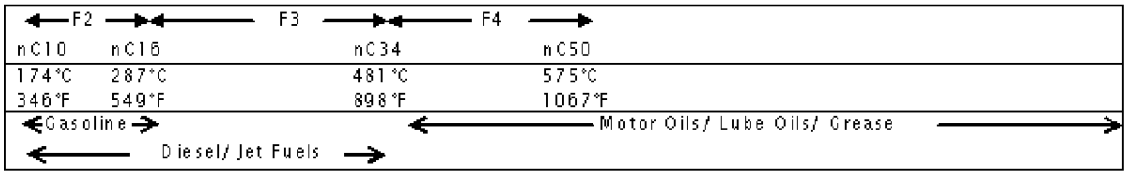
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1820134-2
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.

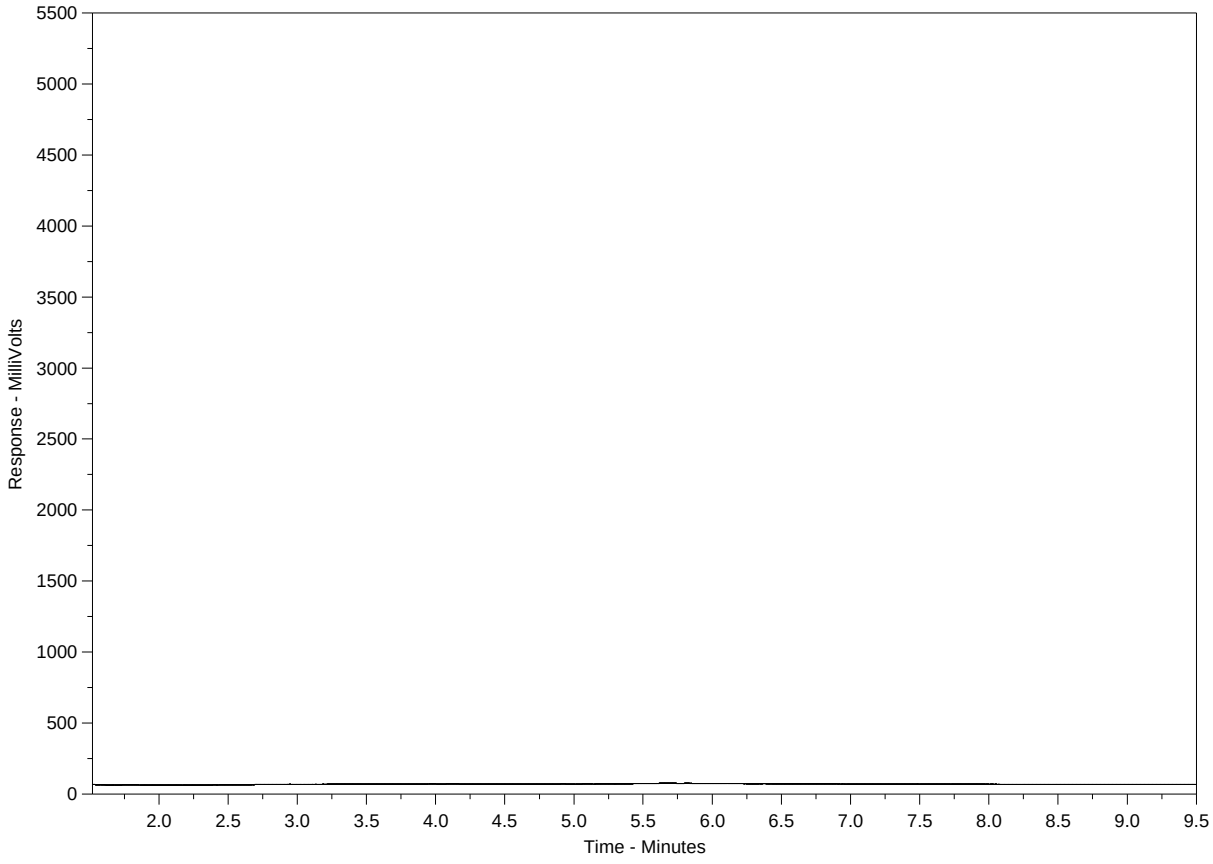
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

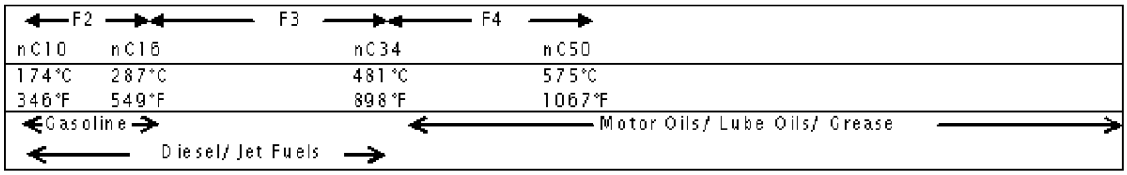
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1820134-3
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.

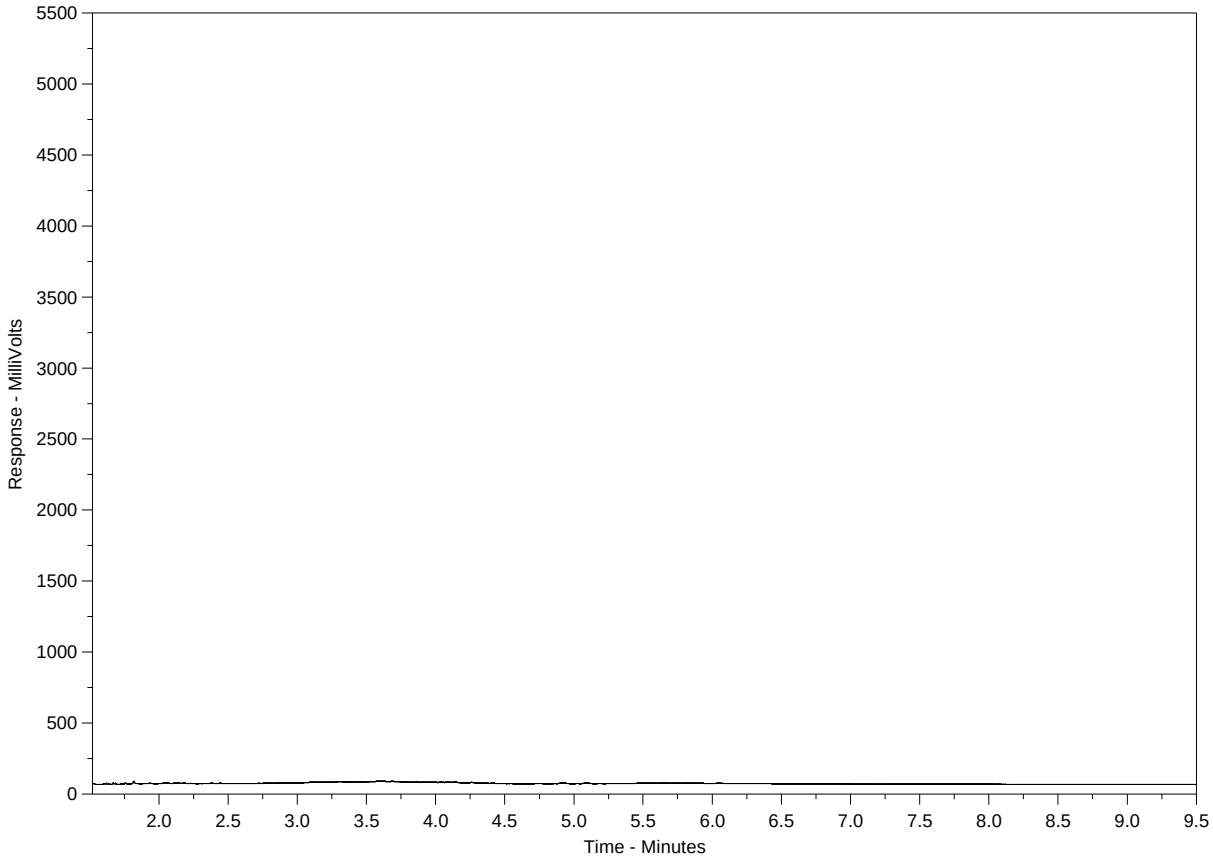
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

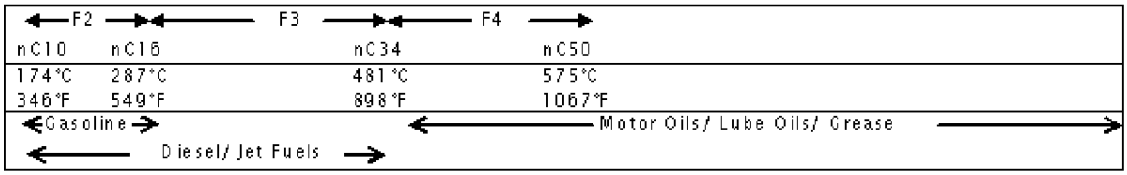
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1820134-4
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.

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

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1820134-COFC

COC Number: 15 - 571747

Page 1 of 1

L1820134

Report To	Contact and company name below will appear on the final report
Company:	Hamlet of Arviat
Contact:	Steve England
Phone:	867-857-2841
	Company address below will appear on the final report
Street:	
City/Province:	ARVIAT, NU
Postal Code:	X0C-0E0
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Report Format / Di

Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: arviatsao@qiniq.com
Email 2: mlusty@gov.nu.ca
Email 3:

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax:
Email 2:

Project Information

ALS Account # / Quote #:
Job #:
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#:
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only)

ALS Contact: **Sampler:**

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

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

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

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

Date and Time Required for all E&P TATs:

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

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Routine	Nitric Acid	BOD	Bacteria	Mercury	Oil & Grease	Sulfuric Acid	Phenols	Sodium x2	BTEX / VOC x3	Number of Containers
	ARV-2	25/08/16	1049	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	ARV-4	25/08/16	1026	EFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	ARV-5	25/08/16	11:06	EFF	✓	✓	J	✓	✓	✓	✓	✓	✓	✓	
	ARV-6	25/08/16	1122	EFF	✓	✓	J	✓	✓	✓	✓	✓	✓	✓	

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human drinking water use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

12

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	Aug 25/16	1140		27-Aug-16	12:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

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

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

91.10

Hamlet of Arviat
ATTN: STEVEN ENGLAND
PO Box 150
Arviat NU X0C 0E0

Date Received: 19-SEP-16
Report Date: 28-SEP-16 11:51 (MT)
Version: FINAL

Client Phone: 867-857-2841

Certificate of Analysis

Lab Work Order #: L1830578

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

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1830578-1 ARV-2							
Sampled By: CLIENT on 16-SEP-16 @ 08:48							
Matrix:							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	704		1.2	mg/L		21-SEP-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		21-SEP-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		21-SEP-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	577		1.0	mg/L		20-SEP-16	R3553460
Ammonia by colour							
Ammonia, Total (as N)	15.2		2.0	mg/L		22-SEP-16	R3555604
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	18.1		6.0	mg/L		19-SEP-16	R3557751
Carbonaceous BOD							
BOD Carbonaceous	15.7		6.0	mg/L		19-SEP-16	R3557751
Chloride in Water by IC							
Chloride (Cl)	371		10	mg/L		19-SEP-16	R3555562
Conductivity							
Conductivity	2760		1.0	umhos/cm		20-SEP-16	R3553460
Fecal Coliform							
Fecal Coliforms	9		3	MPN/100mL		19-SEP-16	R3557050
Hardness Calculated							
Hardness (as CaCO3)	1040	HTC	0.25	mg/L		27-SEP-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	22-SEP-16	22-SEP-16	R3555079
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLM	0.40	mg/L		19-SEP-16	R3555562
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.45		0.45	mg/L		26-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		19-SEP-16	R3555562
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		22-SEP-16	R3555637
Phenol (4AAP)							
Phenols (4AAP)	0.0063		0.0010	mg/L		27-SEP-16	R3558578
Phosphorus, Total							
Phosphorus (P)-Total	1.06		0.010	mg/L		22-SEP-16	R3554466
Sulfate in Water by IC							
Sulfate (SO4)	515		6.0	mg/L		19-SEP-16	R3555562
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0264		0.0050	mg/L	26-SEP-16	26-SEP-16	R3557535
Arsenic (As)-Total	0.00584		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Cadmium (Cd)-Total	0.000077		0.000010	mg/L	26-SEP-16	26-SEP-16	R3557535
Calcium (Ca)-Total	325		0.10	mg/L	26-SEP-16	26-SEP-16	R3557535
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	26-SEP-16	26-SEP-16	R3557535
Cobalt (Co)-Total	0.00087		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Copper (Cu)-Total	0.00894		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Iron (Fe)-Total	1.15		0.010	mg/L	26-SEP-16	26-SEP-16	R3557535
Lead (Pb)-Total	0.000973		0.000090	mg/L	26-SEP-16	26-SEP-16	R3557535
Magnesium (Mg)-Total	56.1		0.010	mg/L	26-SEP-16	26-SEP-16	R3557535
Manganese (Mn)-Total	0.917		0.00030	mg/L	26-SEP-16	26-SEP-16	R3557535
Nickel (Ni)-Total	0.0063		0.0020	mg/L	26-SEP-16	26-SEP-16	R3557535

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1830578-1 ARV-2							
Sampled By: CLIENT on 16-SEP-16 @ 08:48							
Matrix:							
Total Metals by ICP-MS							
Potassium (K)-Total	48.8		0.020	mg/L	26-SEP-16	26-SEP-16	R3557535
Sodium (Na)-Total	246		0.030	mg/L	26-SEP-16	26-SEP-16	R3557535
Zinc (Zn)-Total	0.0218		0.0020	mg/L	26-SEP-16	26-SEP-16	R3557535
Total Organic Carbon by Combustion							
Total Organic Carbon	32.9		0.50	mg/L		20-SEP-16	R3553194
Total Suspended Solids							
Total Suspended Solids	26		10	mg/L		23-SEP-16	R3558065
pH							
pH	8.00		0.10	pH units		20-SEP-16	R3553460
L1830578-2 ARV-4							
Sampled By: CLIENT on 16-SEP-16 @ 08:26							
Matrix:							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	192		1.2	mg/L		21-SEP-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		21-SEP-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		21-SEP-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	157		1.0	mg/L		20-SEP-16	R3553460
Ammonia by colour							
Ammonia, Total (as N)	16.7		0.50	mg/L		22-SEP-16	R3555604
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	6.3		2.0	mg/L		19-SEP-16	R3557751
Carbonaceous BOD							
BOD Carbonaceous	3.5		2.0	mg/L		19-SEP-16	R3557751
Chloride in Water by IC							
Chloride (Cl)	318		2.5	mg/L		19-SEP-16	R3555562
Conductivity							
Conductivity	1360		1.0	umhos/cm		20-SEP-16	R3553460
Fecal Coliform							
Fecal Coliforms	240		3	MPN/100mL		19-SEP-16	R3557050
Hardness Calculated							
Hardness (as CaCO3)	142	HTC	0.25	mg/L		27-SEP-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	22-SEP-16	22-SEP-16	R3555079
Nitrate in Water by IC							
Nitrate (as N)	0.48	DLM	0.10	mg/L		19-SEP-16	R3555562
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.48		0.11	mg/L		26-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.050	DLM	0.050	mg/L		19-SEP-16	R3555562
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		22-SEP-16	R3555637
Phenol (4AAP)							
Phenols (4AAP)	0.0045		0.0010	mg/L		27-SEP-16	R3558578
Phosphorus, Total							
Phosphorus (P)-Total	2.18		0.010	mg/L		22-SEP-16	R3554466
Sulfate in Water by IC							
Sulfate (SO4)	26.7		1.5	mg/L		19-SEP-16	R3555562

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1830578-2 ARV-4							
Sampled By: CLIENT on 16-SEP-16 @ 08:26							
Matrix:							
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0375		0.0050	mg/L	26-SEP-16	26-SEP-16	R3557535
Arsenic (As)-Total	0.00364		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Cadmium (Cd)-Total	0.000014		0.000010	mg/L	26-SEP-16	26-SEP-16	R3557535
Calcium (Ca)-Total	23.9		0.10	mg/L	26-SEP-16	26-SEP-16	R3557535
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	26-SEP-16	26-SEP-16	R3557535
Cobalt (Co)-Total	0.00118		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Copper (Cu)-Total	0.00403		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Iron (Fe)-Total	1.59		0.010	mg/L	26-SEP-16	26-SEP-16	R3557535
Lead (Pb)-Total	0.000188		0.000090	mg/L	26-SEP-16	26-SEP-16	R3557535
Magnesium (Mg)-Total	20.1		0.010	mg/L	26-SEP-16	26-SEP-16	R3557535
Manganese (Mn)-Total	0.451		0.00030	mg/L	26-SEP-16	26-SEP-16	R3557535
Nickel (Ni)-Total	0.0041		0.0020	mg/L	26-SEP-16	26-SEP-16	R3557535
Potassium (K)-Total	19.4		0.020	mg/L	26-SEP-16	26-SEP-16	R3557535
Sodium (Na)-Total	181		0.030	mg/L	26-SEP-16	26-SEP-16	R3557535
Zinc (Zn)-Total	0.0027		0.0020	mg/L	26-SEP-16	26-SEP-16	R3557535
Total Organic Carbon by Combustion							
Total Organic Carbon	18.0		0.50	mg/L		20-SEP-16	R3553194
Total Suspended Solids							
Total Suspended Solids	<10		10	mg/L		23-SEP-16	R3558065
pH							
pH	7.41		0.10	pH units		20-SEP-16	R3553460
L1830578-3 ARV-5							
Sampled By: CLIENT on 16-SEP-16 @ 09:02							
Matrix:							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	78.2		1.2	mg/L		21-SEP-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		21-SEP-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		21-SEP-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	64.1		1.0	mg/L		20-SEP-16	R3553460
Ammonia by colour							
Ammonia, Total (as N)	0.054		0.010	mg/L		22-SEP-16	R3555604
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		19-SEP-16	R3557751
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		19-SEP-16	R3557751
Chloride in Water by IC							
Chloride (Cl)	185		0.50	mg/L		19-SEP-16	R3555562
Conductivity							
Conductivity	735		1.0	umhos/cm		20-SEP-16	R3553460
Fecal Coliform							
Fecal Coliforms	43		3	MPN/100mL		19-SEP-16	R3557050
Hardness Calculated							
Hardness (as CaCO3)	120	HTC	0.25	mg/L		27-SEP-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	22-SEP-16	22-SEP-16	R3555079
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		19-SEP-16	R3555562

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1830578-3 ARV-5							
Sampled By: CLIENT on 16-SEP-16 @ 09:02							
Matrix:							
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		26-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		19-SEP-16	R3555562
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		22-SEP-16	R3555637
Phenol (4AAP)							
Phenols (4AAP)	0.0014		0.0010	mg/L		27-SEP-16	R3558578
Phosphorus, Total							
Phosphorus (P)-Total	0.137		0.010	mg/L		22-SEP-16	R3554466
Sulfate in Water by IC							
Sulfate (SO4)	11.8		0.30	mg/L		19-SEP-16	R3555562
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0237		0.0050	mg/L	26-SEP-16	26-SEP-16	R3557535
Arsenic (As)-Total	0.00036		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	26-SEP-16	26-SEP-16	R3557535
Calcium (Ca)-Total	22.5		0.10	mg/L	26-SEP-16	26-SEP-16	R3557535
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	26-SEP-16	26-SEP-16	R3557535
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Copper (Cu)-Total	0.00040		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Iron (Fe)-Total	0.882		0.010	mg/L	26-SEP-16	26-SEP-16	R3557535
Lead (Pb)-Total	<0.000090		0.000090	mg/L	26-SEP-16	26-SEP-16	R3557535
Magnesium (Mg)-Total	15.6		0.010	mg/L	26-SEP-16	26-SEP-16	R3557535
Manganese (Mn)-Total	0.0253		0.00030	mg/L	26-SEP-16	26-SEP-16	R3557535
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	26-SEP-16	26-SEP-16	R3557535
Potassium (K)-Total	6.27		0.020	mg/L	26-SEP-16	26-SEP-16	R3557535
Sodium (Na)-Total	95.2		0.030	mg/L	26-SEP-16	26-SEP-16	R3557535
Zinc (Zn)-Total	0.0032		0.0020	mg/L	26-SEP-16	26-SEP-16	R3557535
Total Organic Carbon by Combustion							
Total Organic Carbon	8.46		0.50	mg/L		20-SEP-16	R3553194
Total Suspended Solids							
Total Suspended Solids	7.0		5.0	mg/L		23-SEP-16	R3558065
pH							
pH	7.63		0.10	pH units		20-SEP-16	R3553460
L1830578-4 ARV-6							
Sampled By: CLIENT on 16-SEP-16 @ 09:15							
Matrix:							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	97.7		1.2	mg/L		21-SEP-16	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		21-SEP-16	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		21-SEP-16	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	80.1		1.0	mg/L		20-SEP-16	R3553460
Ammonia by colour							
Ammonia, Total (as N)	0.83		0.10	mg/L		22-SEP-16	R3555604
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	5.1		2.0	mg/L		19-SEP-16	R3557751
Carbonaceous BOD							
BOD Carbonaceous	2.2		2.0	mg/L		19-SEP-16	R3557751

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1830578-4 ARV-6							
Sampled By: CLIENT on 16-SEP-16 @ 09:15							
Matrix:							
Chloride in Water by IC							
Chloride (Cl)	215		1.0	mg/L		19-SEP-16	R3555562
Conductivity							
Conductivity	834		1.0	umhos/cm		20-SEP-16	R3553460
Fecal Coliform							
Fecal Coliforms	<3		3	MPN/100mL		19-SEP-16	R3557050
Hardness Calculated							
Hardness (as CaCO3)	221	HTC	0.25	mg/L		28-SEP-16	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	22-SEP-16	22-SEP-16	R3555079
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		19-SEP-16	R3555562
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		26-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		19-SEP-16	R3555562
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		22-SEP-16	R3555637
Phenol (4AAP)							
Phenols (4AAP)	0.0030		0.0010	mg/L		28-SEP-16	R3558854
Phosphorus, Total							
Phosphorus (P)-Total	0.043		0.010	mg/L		22-SEP-16	R3554466
Sulfate in Water by IC							
Sulfate (SO4)	<0.60	DLM	0.60	mg/L		19-SEP-16	R3555562
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0246		0.0050	mg/L	26-SEP-16	26-SEP-16	R3557535
Arsenic (As)-Total	0.00101		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	26-SEP-16	26-SEP-16	R3557535
Calcium (Ca)-Total	64.5		0.10	mg/L	26-SEP-16	26-SEP-16	R3557535
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	26-SEP-16	26-SEP-16	R3557535
Cobalt (Co)-Total	0.00092		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Copper (Cu)-Total	0.00028		0.00020	mg/L	26-SEP-16	26-SEP-16	R3557535
Iron (Fe)-Total	24.0		0.010	mg/L	26-SEP-16	26-SEP-16	R3557535
Lead (Pb)-Total	<0.000090		0.000090	mg/L	26-SEP-16	26-SEP-16	R3557535
Magnesium (Mg)-Total	14.5		0.010	mg/L	26-SEP-16	26-SEP-16	R3557535
Manganese (Mn)-Total	2.02		0.030	mg/L	26-SEP-16	27-SEP-16	R3558558
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	26-SEP-16	26-SEP-16	R3557535
Potassium (K)-Total	6.34		0.020	mg/L	26-SEP-16	26-SEP-16	R3557535
Sodium (Na)-Total	54.2		0.030	mg/L	26-SEP-16	26-SEP-16	R3557535
Zinc (Zn)-Total	0.0031		0.0020	mg/L	26-SEP-16	26-SEP-16	R3557535
Total Organic Carbon by Combustion							
Total Organic Carbon	8.61		0.50	mg/L		20-SEP-16	R3553194
Total Suspended Solids							
Total Suspended Solids	58		13	mg/L		23-SEP-16	R3558065
pH							
pH	6.61		0.10	pH units		20-SEP-16	R3553460

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
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.

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

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

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

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

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

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

BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B

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

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

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

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.

FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

The Most Probable Number (MPN) method is based on the Multiple Tube Fermentation technique. Aliquots from three or more decimal dilutions of a sample are inoculated into tubes containing enrichment media and incubated at 35C for 48 – 3 hours. Sample aliquots exhibiting the characteristic positive response are transferred to various selective media for the coliform group(s) of interest and incubated at specific temperatures and times. The Most Probable Number for each target group is statistically derived from a standard MPN table based on the combinations of positive outcomes at each dilution.
The fecal (thermotolerant) coliform group may include organisms not originating in the intestines of warm-blooded animals.

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.

HARDNESS-CALC-WP	Water	Hardness Calculated	HARDNESS CALCULATED

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.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			

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

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

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

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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 Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1830578-COFC

COC Number: 15 - 571748

Page 1 of

Report To	Contact and company name below will appear on the final report	Report Format /	Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply
Company:	Hamlet of Arviat	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Steve England	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4] ☐ / 3 day [P3] ☐ / 2 day [P2] ☐ — EMERGENCY: 1 Business day [E1] ☐ / Same Day, Weekend or Statutory holiday [E0] ☐
Phone:	867-857-2841	☐ Compare Results to Criteria on Report - provide details below if box checked	
Company address below will appear on the final report		Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Street:		Email 1 or Fax arviatsao@qiniq.com	Date and Time Required for all E&P TATs:
City/Province:	ARVIAT	Email 2 mlusty@gov.nu.ca	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	X0C-0E0	Email 3	Analysis Request
Invoice To	Same as Report To ☐ YES ☐ NO	**Invoice Distribution**	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Benzene	Nitric Acid	BOD	Bacteria	Mercury	Oil & Grease	Sulfuric Acid	Phenols	Number of Containers
	ARV-2	Sept 16/16	8:48am		L	L	L	L	L	L	L	L	
	ARV-4	Sept 16/16	8:26		L	L	L	L	L	L	L	L	
	ARV-5	Sept 16/16	9:08am		L	L	L	L	L	L	L	L	
	ARV-6	Sept 16/16	9:15am		L	L	L	L	L	L	L	L	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	7.1°C	Frozen ☐ SIF Observations Yes ☐ No ☐
Are samples for human drinking water use? ☐ YES ☐ NO		Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
		Cooling Initiated ☐
		INITIAL COOLER TEMPERATURES °C / FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	Sept 16/16		A.K.	Sep 19/16	11:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

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

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

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): 2016

Spill No.	Date	Ter	Region	Location	Site Description	Commodity	Quantity	Source	Agency
2016127	2016-04-19	NU	KEE	Arviat	Arviat, 802 10th Avenue, unit 271	No.2 Home heating fuel	0 L	ST<	GN
2016173	2016-05-16	NU	KEE	Arviat	Southwest of the Northern Store	Diesel	100 L	ST<	GN
2016193	2016-05-26	NU	KEE	Arviat	Arviat, 801 8th Street	Heating Oil	100 L	ST<	GN
2016194	2016-05-26	NU	KEE	Arviat	801- 8th Street	Heating Fuel	100 L	ST<	GN
2016225	2016-06-17	NU	KEE	Arviat	Arviat, 404 A 5th Street	Heating Fuel	200 L	DRUM	GN

Total Spills on this Report: 5

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:
BAF - Baffin
DEH - Deh Cho
INU - Inuvik
KEE - Keewatin
KIT - Kitikmeot
NSL - North Slave
SAH - Sahtu
SSL - South Slave

Source:
AIR - Aircraft
DRUM - Drum or Barrel
MV - Marine Vessel
NS - Natural Seepage
OTH - Other Transportation
PL - Pipe or Line
RT - Rail Train
SL - Sewage Lagoon
ST< - Storage Tank <4000 litres
ST> - Storage Tank >4000 litres
TP - Tailings Pond
TRU - Truck
UK - Unkown
WELL - Wet Wells, Flaring
Boom

Agency:
CCG - Canadian Coast Guard
EP - Environment Canada
GN - Government of Nunavut
GNWT - Government of Northwest Territories
ILA - Inuvialiut Land Administration
INAC - Indian and Northern Affairs Canada
NEB - National Energy Board