

May 7, 2021

Nunavut Water Board P.O. Box 119 Gjoa Haven, NU X0B 1L0

Attention: Richard Dwyer, Manager of Licensing

Dear Richard,

The Hamlet of Arviat is pleased to submit the 2020 Annual Report for water use and disposal of waste as required under the 3AM-ARV1016 water license from January 1-December 31, 2020. An application for a renewal-amendment was submitted to NWB on September 16, 2020. An additional amendment application to include the expansion of the sewage lagoon in the new license will be submitted to NWB in following screening by NIRB.

Water was pumped from Wolf Creek from June 29 to freeze up on September 25, 2020. The volume taken to fill the 3 reservoirs was 182,509 m<sup>3</sup>, which is above the 86,000m<sup>3</sup> allowable limit. This is 0.17% of the 107,100,000 m<sup>3</sup>/year flow through Wolf Creek according to the 2019 hydrological assessment.

An increase to the allowable limit to represent the total 235,393 m<sup>3</sup> reservoir volume has been requested as part of the renewal-amendment application submitted in 2020 to support the community growth for the design horizon. The estimated water use in 2020 was 105,878 m<sup>3</sup> and a 1.2% increase from last year (104,606 m<sup>3</sup>).

Sampling of sewage effluent was tested at the ALS Laboratory in Winnipeg. The effluent sampled at the wetland discharge point ARV-4 was above the allowable limits for BOD and TSS for the September 16<sup>th</sup> and 17<sup>th</sup> samples. The effluent in these samples would not have benefited from the dilution that occurs during freshet, nor the treatment obtained from the appropriate retention time in the lagoon, which the expansion project will address.

Thank you for your consideration. Please do not hesitate to contact me with any questions or concerns.

Regards,

Sarah Collins, P. Eng.

Municipal Planning Engineer Government of Nunavut

Community and Government Services

Phone: 867-975-5478 Email: scollins@gov.nu.ca

#### YEAR BEING REPORTED: 2020

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

- a) Tabular summaries of all data generated under the Monitoring Program;
- b) The monthly and annual quantities of freshwater obtained from all sources;
- c) The monthly and annual quantities of Wastes removed for disposal from Water Supply Facilities and Waste Disposal Facilities;

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

Month Reported	Quantity of Water Obtained from all sources (m³)	Quantity of Sewage Waste Discharged (Estimated, m³)				
January	9,258.356	Same				
February	8,459.807	Same				
March	9,182.697	Same				
April	8,889.713	Same				
May	9,046.009	Same				
June	8,676.420	Same				
July	9,256.838	Same				
August	9,116.996	Same				
September	8,893.566	Same				
October	9,154.156	Same				
November	7,900.441	Same				
December	8,042.497	Same				
ANNUAL TOTAL	105,877.500	Same				

Note: There is no meter at the Sewage discharge pipe. Therefore, the monthly discharge volume is considered as equal to the monthly water consumption volume. The volume of wastewater generated by the water supply facility was not available.

- d) A summary of modifications and/or major maintenance work carried out on Water Supply Facilities and Waste Disposal Facilities including all associated structures and facilities;
- Vehicles, old sewage tanks, and tires were shredded for disposal by a metal shredder bought by the Hamlet of Arviat.
- Segregation continues to improve at the Solid Waste Site and Bulky Metals Site. Batteries are
  collected and being stored in a sea can. The Hamlet is working on getting these sent out on a
  ship as the sea can that contains them is full.
- The Solid Waste Site is improving drastically; there are currently minor piles of wood and waste within the fenced area.
- e) A list of unauthorized discharges and summary of follow-up action taken;

Spill No.	Date	Site Description	Commodity	Quantity
2020047	02/14/20	RCMP Detachment 4 <sup>th</sup> Avenue	Chemicals (including transformer oils)	410.00 L
2020108	04/22/20	602A-D/404A-D 6 <sup>th</sup> Avenue	Wastewater (sewage, mine tailings)	200.00 L
2020123	05/04/20	Visitor's Centre, 621 3 <sup>rd</sup> Avenue	Petroleum-fuel oil (jet A, diesel, turbo A, heat)	500.00 L
2020174	06/10/20	308 7 <sup>th</sup> Avenue	Petroleum-fuel oil (jet A, diesel, turbo A, heat)	300.00 L
2020194	06/25/20	Northern Store	Petroleum-fuel oil (jet A, diesel, turbo A, heat)	100.00 L
2020428	11/06/20	Arviat Gas Bar	Petroleum-fuel oil (jet A, diesel, turbo A, heat)	113.65 L

- f) Any revisions to approved plans and manuals as required by Part B, Item 12, submitted in the form of an addendum;
- Updates to current plans are complete and were submitted to NWB in March 2021.
- g) A summary of the status of implementation of the Work Plan, including an indication of the status of the funding required to carry out the Work Plan and an estimated timeframe for receipt of the necessary funding;
- This 2010 document was not available at the time of this submission. The Licensee has made

significant improvement to solid waste management since 2010 and a project to upgrade the site is ongoing, the water treatment facility and reservoirs have been upgraded, and a plan to expand the wastewater treatment facility is ongoing.

- f) A fiscal update of the Licensee's funding commitments associated with all facilities governed by this Licence including all associated structures and facilities for the upcoming year and identifying shortfalls in such funding commitments for the previous year;
- CGS is seeking funding to move into the design phase of the sewage lagoon expansion project.
- The budget for the solid waste upgrade project cannot support a 20-year fully engineered solid
  waste site, class D cost estimates are significantly higher than budgeted. An evaluation of the
  extent of upgrades that can be undertaken at the current site with the available budget will be
  completed in 2021/22.
- g) A summary of abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
- None
- h) A summary of any studies, reports and plans requested by the Board that relate to Waste disposal, Water use or reclamation, and a brief description of any future studies planned;
- The Wolf Creek 2019 Hydrologic Assessment report was finalized in 2020. Data was collected from June to October 2019. The estimated long-term mean annual discharge was calculated as 107,128,416 m³/year. The total reservoir volume is 235,393 m³, which is 0.22% of the annual discharge. The report determined that Wolf Creek will continue to be a viable potable water source for the Hamlet.
- The business case report for the expansion of the sewage lagoon will be finalized in May 2021. CGS is now seeking funding to move into the design phase. Concurrently, CGS plans to apply to include an amendment for the lagoon expansion in the ongoing renewal-amendment application. NPC notified CGS on April 16, 2021 that NIRB screening is required due to the extent of the expansion. CGS is expecting to submit the application package to NIRB by May 30, 2021, and the application to NWB will follow once the NIRB process is complete.
- The initial planning contract for the solid waste project will be completed in 2021. The cost
  estimates have indicated that the current funding cannot support constructing a state-of-the-art
  20-year landfill. The focus of the project will shift to upgrading the current site and expanding
  into the abandoned lagoon cells. A second planning contract to assess the cost of the
  improvements needed at the current site and a construction plan will be undertaken in 2021/22.

- i) any other details on water use or waste disposal requested by the Board by November 1st of the year being reported.
- None

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

- The renewal-amendment application package was submitted to NWB on September 16, 2020
  that includes the upgrades to the water treatment plant and reservoir, as well as an increase in
  the annual resupply from Wolf Creek to meet increasing community consumption levels, while
  respecting the findings of the Hydrological Assessment. CGS plans to submit an additional
  application to include the expansion of the lagoon in the new license.
- Emergency decanting of the lagoon was approved by CIRNAC and took place in June to prevent berm failure.
- Resupply of the raw water reservoirs took place at Wolf Creek, took place from June 29<sup>th</sup> until September 25<sup>th</sup> when pumping was terminated due to freeze-up, at which point each reservoir had been filled. A total of 182,509 m³ was pumped during the resupply.

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

- A copy of the CIRNAC report from the July 22<sup>nd</sup> inspection has not been received at the time of this submission.
- The sewage lagoon will need to be desludged before the 2021 inspection as requested by the CIRNAC inspector due to capacity issues relating to annual emergency discharges. The licensee is in communication with the inspector to discuss this undertaking in light of the new lagoon being planned for construction soon, pending funding applications.
- It is noted that the current sewage lagoon is inadequately treating the effluent, confirmed by non-compliant sampling results. The new sewage lagoon will address the capacity issues and treatment goals.

#### **List of Appendices**

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

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

**Appendix C: Laboratory Certificate of Analysis** 

- Certificate of Analysis July 13, 2020 27 pages
- Certificate of Analysis July 29, 2020 18 pages
- Certificate of Analysis September 16, 2020 16 pages
- Certificate of Analysis September 17, 2020 17 pages

Appendix D: Hazardous Materials Spill Database, Arviat 2020 – 1 page

Appendix E: Arviat 2020 Sampling Summary – 4 pages

**Appendix F: CIRNAC Inspection Report - 1 pages** 

### Appendix A : ARV-4 Effluent Quality Limits

#### 3BM-ARV1016 Arviat Monitoring Program Results 2020 for Effluent Quality

Parameter			ARV-4						
Parameter	Limits	13-Jul-20	29-Jul-20	16-Sep-20	17-Sep-20				
BOD5	80 mg/L	93	45	<mark>&gt; 140</mark>	<mark>&gt; 140</mark>				
Total Suspended Solids	100 mg/L	89.9	33.5	<mark>177</mark>	<mark>208</mark>				
Fecal Coliforms	1 x 10 <sup>4</sup> CFU/100mL	<mark>19900</mark>	<mark>14100</mark>	2760	1380				
Oil & Grease	no visible sheen	5	5	<5.0	<5.0				
рН	between 6 and 9	7.75	7.73	8.43	8.01				

### Appendix B: Weekly Inspections at Monitoring Program Stations

Weekly inspection of monitoring sites was not received by CGS.

Appendix C: Laboratory Certificate of Analysis



Nunavut Community & Government

Services - Rankin Inlet

ATTN: ADAM ELDER / AGLUKAQ TARTAK

(Arviat)

Box 278

Arviat NU XOC 0E0

Date Received: 14-JUL-20

Report Date: 22-JUL-20 12:20 (MT)

Version: FINAL

Client Phone: 867-857-2661

## Certificate of Analysis

Lab Work Order #: L2473824

Project P.O. #: NOT SUBMITTED

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

Mhl

Hua Wo

Chemistry Laboratory Manager

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

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

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



Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2473824-1 ARV-2							
Sampled By: CLIENT on 13-JUL-20 @ 08:58							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene Benzene	<0.00050	VOCHS	0.00050	mg/L		16-JUL-20	R5154921
Toluene	<0.0010	VOCHS	0.0010	mg/L		16-JUL-20	R5154921
Ethyl benzene	<0.00050	VOCHS	0.00050	mg/L		16-JUL-20	R5154921
o-Xylene	<0.00050	VOCHS	0.00050	mg/L		16-JUL-20	R5154921
m+p-Xylenes	<0.00040	VOCHS	0.00040	mg/L		16-JUL-20	R5154921
F1 (C6-C10)	<0.10	VOCHS	0.10	mg/L		16-JUL-20	R5154921
Surrogate: 4-Bromofluorobenzene (SS)	83.1		70-130	%		16-JUL-20	R5154921
CCME PHC F2-F4 in Water							
F2 (C10-C16)	0.14		0.10	mg/L	15-JUL-20	15-JUL-20	R5156656
F3 (C16-C34)	0.30		0.25	mg/L	15-JUL-20	15-JUL-20	R5156656
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUL-20	15-JUL-20	R5156656
Surrogate: 2-Bromobenzotrifluoride	122.7		60-140	%	15-JUL-20	15-JUL-20	R5156656
CCME Total Hydrocarbons	2.15		6.15			00 !!!! 00	
F1-BTEX	<0.10		0.10	mg/L		20-JUL-20	
F2-Naphth	0.14		0.10	mg/L		20-JUL-20	
F3-PAH Tatal Undragarhana (C6 CE0)	0.30		0.25	mg/L		20-JUL-20	
Total Hydrocarbons (C6-C50)	0.44		0.38	mg/L		20-JUL-20	
Sum of Xylene Isomer Concentrations Xylenes (Total)	<0.00064		0.00064	mg/L		16-JUL-20	
Aylenes (Total)	<0.0004		0.00004	IIIg/L		10-301-20	
Total and E. coli, 1:10 dilution by QT97							
Total Coliforms	510	MBHT	10	MPN/100mL		14-JUL-20	R5154004
Escherichia Coli	50	MBHT	10	MPN/100mL		14-JUL-20	R5154004
CCME PAHs in mg/L							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Acenaphthene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Acenaphthylene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Anthracene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Acridine	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(a)anthracene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(a)pyrene	<0.000050		0.0000050	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(k)fluoranthene Chrysene	<0.000010 <0.000020		0.000010 0.000020	mg/L mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059 R5158059
Dibenzo(a,h)anthracene	<0.000020		0.000020	mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059 R5158059
Fluoranthene	<0.000020		0.0000030	mg/L	16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Fluorene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Indeno(1,2,3-cd)pyrene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Naphthalene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Phenanthrene	<0.000050		0.000050	mg/L	16-JUL-20	20-JUL-20	R5158059
Pyrene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Quinoline	0.000055		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	16-JUL-20	20-JUL-20	R5158059
Surrogate: d8-Naphthalene	94.6		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d10-Phenanthrene	90.8		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d12-Chrysene	76.0		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d10-Acenaphthene	89.1		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d9-Acridine (SS)	94.1		50-150	%	16-JUL-20	20-JUL-20	R5158059
Nunavut WW Group 1							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2473824-1 ARV-2							
Sampled By: CLIENT on 13-JUL-20 @ 08:58							
Matrix: WATER							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	432		1.2	mg/L		16-JUL-20	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		16-JUL-20	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		16-JUL-20	
Alkalinity, Total (as CaCO3)				3			
Alkalinity, Total (as CaCO3)	354		1.0	mg/L		15-JUL-20	R5154480
Ammonia by colour	0.70		0.40	/I		40 1111 00	DE457000
Ammonia, Total (as N)  Biochemical Oxygen Demand (BOD)	3.72		0.10	mg/L		16-JUL-20	R5157280
Biochemical Oxygen Demand	44		20	mg/L		15-JUL-20	R5159515
Carbonaceous BOD							
BOD Carbonaceous	34.6		6.0	mg/L		15-JUL-20	R5159515
Chloride in Water by IC Chloride (CI)	573		10	mg/L		14-JUL-20	R5159802
Conductivity	0.0			9, _			. 10 10002
Conductivity	3360		1.0	umhos/cm		15-JUL-20	R5154480
Fecal coliforms, 1:10 dilution by QT97	50	MBHT	40	MDNI/400mal		44 1111 20	DE450004
Fecal Coliforms  Hardness Calculated	50	IVIDITI	10	MPN/100mL		14-JUL-20	R5153984
Hardness (as CaCO3)	959	HTC	0.20	mg/L		20-JUL-20	
Mercury Total							
Mercury (Hg)-Total	0.0000160		0.0000050	mg/L	16-JUL-20	16-JUL-20	R5156978
Nitrate in Water by IC Nitrate (as N)	<0.40	DLM	0.40	mg/L		14-JUL-20	R5159802
Nitrate+Nitrite	<b>~0.40</b>	DEW	0.40	IIIg/L		14-30L-20	K3139802
Nitrate and Nitrite as N	<0.45		0.45	mg/L		21-JUL-20	
Nitrite in Water by IC							
Nitrite (as N) Oil & Grease - Gravimetric	<0.20	DLM	0.20	mg/L		14-JUL-20	R5159802
Oil and Grease	<5.0		5.0	mg/L		21-JUL-20	R5161499
Phenol (4AAP)							
Phenols (4AAP)	0.0029		0.0010	mg/L		16-JUL-20	R5156146
Phosphorus, Total Phosphorus (P)-Total	0.569		0.0030	mg/L		17-JUL-20	R5157047
Sulfate in Water by IC	0.509		0.0030	IIIg/L		17-30L-20	K3137047
Sulfate (SO4)	686		6.0	mg/L		14-JUL-20	R5159802
Total Metals in Water by CRC ICPMS					40 11 11 05	40 11 11 05	
Aluminum (Al)-Total	0.0435		0.0030	mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998
Arsenic (As)-Total Cadmium (Cd)-Total	0.00465 0.0000777		0.00010	mg/L mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998 R5156998
Calcium (Ca)-Total	253		0.050	mg/L	16-JUL-20	16-JUL-20	R5156998
Chromium (Cr)-Total	0.00225		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Cobalt (Co)-Total	0.00278		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Copper (Cu)-Total	0.0169		0.00050	mg/L	16-JUL-20	16-JUL-20	R5156998
Iron (Fe)-Total Lead (Pb)-Total	1.07 0.00112		0.010 0.000050	mg/L mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998 R5156998
Magnesium (Mg)-Total	79.4		0.000050	mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156996 R5156998
Manganese (Mn)-Total	0.759		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Nickel (Ni)-Total	0.0109		0.00050	mg/L	16-JUL-20	16-JUL-20	R5156998
Potassium (K)-Total	63.4		0.050	mg/L	16-JUL-20	16-JUL-20	R5156998
Sodium (Na)-Total	348		0.050	mg/L	16-JUL-20	16-JUL-20	R5156998

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
   L2473824-1   ARV-2							
Sampled By: CLIENT on 13-JUL-20 @ 08:58							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Zinc (Zn)-Total	0.0905		0.0030	mg/L	16-JUL-20	16-JUL-20	R5156998
Total Organic Carbon by Combustion							
Total Organic Carbon	63.1		5.0	mg/L		17-JUL-20	R5158394
Total Suspended Solids Total Suspended Solids	42.3		3.0	ma/l		20-JUL-20	R5160054
pH	42.3		3.0	mg/L		20-JUL-20	R5160054
рH	8.04		0.10	pH units		15-JUL-20	R5154480
L2473824-2 ARV-4							
Sampled By: CLIENT on 13-JUL-20 @ 08:40							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050	VOCHS	0.00050	mg/L		16-JUL-20	R5154921
Toluene	<0.0010	VOCHS	0.0010	mg/L		16-JUL-20	R5154921
Ethyl benzene	<0.00050	VOCHS	0.00050	mg/L		16-JUL-20	R5154921
o-Xylene	<0.00050	VOCHS	0.00050	mg/L		16-JUL-20	R5154921
m+p-Xylenes	<0.00040	VOCHS	0.00040	mg/L		16-JUL-20	R5154921
F1 (C6-C10)	<0.10	VOCHS	0.10	mg/L		16-JUL-20	R5154921
Surrogate: 4-Bromofluorobenzene (SS)	83.5		70-130	%		16-JUL-20	R5154921
CCME PHC F2-F4 in Water F2 (C10-C16)	0.11		0.10	mall	15-JUL-20	15-JUL-20	R5156656
F3 (C16-C34)	1.65		0.10 0.25	mg/L	15-JUL-20 15-JUL-20	15-JUL-20 15-JUL-20	R5156656
F4 (C34-C50)	0.61		0.25	mg/L mg/L	15-JUL-20	15-JUL-20	R5156656
Surrogate: 2-Bromobenzotrifluoride	113.9		60-140	%	15-JUL-20	15-JUL-20	R5156656
CCME Total Hydrocarbons	110.0		00 140	,,,	10 002 20	10 002 20	11010000
F1-BTEX	<0.10		0.10	mg/L		20-JUL-20	
F2-Naphth	0.11		0.10	mg/L		20-JUL-20	
F3-PAH	1.65		0.25	mg/L		20-JUL-20	
Total Hydrocarbons (C6-C50)	2.37		0.38	mg/L		20-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		16-JUL-20	
Total and E. coli, 1:10 dilution by QT97							
Total Coliforms	24200	MBHT	10	MPN/100mL		14-JUL-20	R5154004
Escherichia Coli	17300	MBHT	10	MPN/100mL		14-JUL-20	R5154004
CCME PAHs in mg/L							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Acenaphthene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Acenaphthylene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Anthracene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Acridine	0.000047		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(a)anthracene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(b&i)fluoranthene	<0.000050		0.0000050	mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Benzo(b&j)fluoranthene Benzo(g,h,i)perylene	<0.000010 <0.000020		0.000010 0.000020	mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Benzo(k)fluoranthene	<0.000020		0.000020	mg/L mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059 R5158059
Chrysene	<0.000010		0.000010	mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Dibenzo(a,h)anthracene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Fluoranthene	<0.000030		0.0000030	mg/L	16-JUL-20	20-JUL-20	R5158059
Fluorene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
	3.00020		3.000020	9, _	10 001 20	20 002 20	. 10 100000

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2473824-2 ARV-4							
Sampled By: CLIENT on 13-JUL-20 @ 08:40							
Matrix: WATER							
CCME PAHs in mg/L							
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Naphthalene Phenanthrene	<0.000050 <0.000050		0.000050	mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059 R5158059
Pyrene	<0.000050		0.000050 0.000010	mg/L mg/L	16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Quinoline	0.000038		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	16-JUL-20	20-JUL-20	R5158059
Surrogate: d8-Naphthalene	115.6		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d10-Phenanthrene	95.0		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d12-Chrysene	81.4		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d10-Acenaphthene Surrogate: d9-Acridine (SS)	99.8 95.6		50-150 50-150	% %	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059 R5158059
Nunavut WW Group 1	95.0		30-130	70	10-00L-20	20-00L-20	13130039
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	234		1.2	mg/L		16-JUL-20	
Alkalinity, Carbonate	20.00		0.00	w 0		40 1111 00	
Carbonate (CO3)	<0.60		0.60	mg/L		16-JUL-20	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		16-JUL-20	
Alkalinity, Total (as CaCO3)			0.0.	9			
Alkalinity, Total (as CaCO3)	192		1.0	mg/L		15-JUL-20	R5154480
Ammonia by colour							
Ammonia, Total (as N)	25.4		1.0	mg/L		16-JUL-20	R5157280
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	93		20	mg/L		15-JUL-20	R5159515
Carbonaceous BOD							
BOD Carbonaceous	47		20	mg/L		15-JUL-20	R5159515
Chloride in Water by IC						44 11 11 00	D=1=0000
Chloride (CI)  Conductivity	87.0		0.50	mg/L		14-JUL-20	R5159802
Conductivity	672		1.0	umhos/cm		15-JUL-20	R5154480
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	19900	MBHT	10	MPN/100mL		14-JUL-20	R5153984
Hardness Calculated	70.0	LITO	0.00	w 0		00 1111 00	
Hardness (as CaCO3)	72.3	HTC	0.20	mg/L		20-JUL-20	
Mercury Total Mercury (Hg)-Total	0.0000070		0.0000050	mg/L	16-JUL-20	16-JUL-20	R5156978
Nitrate in Water by IC				J. –	<del> </del>		
Nitrate (as N)	0.260		0.020	mg/L		14-JUL-20	R5159802
Nitrate+Nitrite	0.005		0.070	ma 5:11		04 11 11 00	
Nitrate and Nitrite as N	0.325		0.070	mg/L		21-JUL-20	
Nitrite in Water by IC Nitrite (as N)	0.065		0.010	mg/L		14-JUL-20	R5159802
Oil & Grease - Gravimetric				J. –			
Oil and Grease	<5.0		5.0	mg/L		21-JUL-20	R5161499
Phenol (4AAP) Phenols (4AAP)	0.0078	DLM	0.0050	mg/L		16-JUL-20	R5156146
Phosphorus, Total	3.3070		0.0000	9, _		.5 552 20	. 10 100 170
Phosphorus (P)-Total	7.10		0.030	mg/L		17-JUL-20	R5157047
Sulfate in Water by IC				_		44 11 11 25	<b>D-</b> 4 <b>-</b> 6 - 5 - 5
Sulfate (SO4)	3.91		0.30	mg/L		14-JUL-20	R5159802
Total Metals in Water by CRC ICPMS Aluminum (AI)-Total	0.0974		0.0030	mg/L	16-JUL-20	16-JUL-20	R5156998
( )	3.0074		0.0000	9, _	.0 002 20	.5 552 20	. 10 100000

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2473824-2 ARV-4							
Sampled By: CLIENT on 13-JUL-20 @ 08:40							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00427		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Cadmium (Cd)-Total	0.0000705		0.0000050	-	16-JUL-20	16-JUL-20	R5156998
Calcium (Ca)-Total	16.6		0.050	mg/L	16-JUL-20	16-JUL-20	R5156998
Chromium (Cr)-Total	0.00106		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Cobalt (Co)-Total	0.00183		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Copper (Cu)-Total	0.0557		0.00050	mg/L	16-JUL-20	16-JUL-20	R5156998
Iron (Fe)-Total Lead (Pb)-Total	2.33 0.00175		0.010 0.000050	mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998 R5156998
Magnesium (Mg)-Total	7.48		0.00050	mg/L mg/L	16-JUL-20	16-JUL-20	R5156998
Manganese (Mn)-Total	0.218		0.0030	mg/L	16-JUL-20	16-JUL-20	R5156998
Nickel (Ni)-Total	0.00639		0.00050	mg/L	16-JUL-20	16-JUL-20	R5156998
Potassium (K)-Total	20.5		0.050	mg/L	16-JUL-20	16-JUL-20	R5156998
Sodium (Na)-Total	61.9		0.050	mg/L	16-JUL-20	16-JUL-20	R5156998
Zinc (Zn)-Total	0.0472		0.0030	mg/L	16-JUL-20	16-JUL-20	R5156998
Total Organic Carbon by Combustion			_				
Total Organic Carbon	69.9		5.0	mg/L		17-JUL-20	R5158394
Total Suspended Solids Total Suspended Solids	89.9		3.0	mg/L		20-JUL-20	R5160054
pH	09.9		3.0	IIIg/L		20-30L-20	K5100054
pH	7.75		0.10	pH units		15-JUL-20	R5154480
L2473824-3 ARV-5							
Sampled By: CLIENT on 13-JUL-20 @ 09:14							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050	VOCHS	0.00050	mg/L		16-JUL-20	R5154921
Toluene	<0.0010	VOCHS	0.0010	mg/L		16-JUL-20	R5154921
Ethyl benzene	<0.00050	VOCHS	0.00050	mg/L		16-JUL-20	R5154921
o-Xylene m+p-Xylenes	<0.00050 <0.00040	VOCHS	0.00050 0.00040	mg/L mg/L		16-JUL-20 16-JUL-20	R5154921 R5154921
F1 (C6-C10)	<0.0040	VOCHS	0.00040	mg/L		16-JUL-20	R5154921
Surrogate: 4-Bromofluorobenzene (SS)	86.5		70-130	%		16-JUL-20	R5154921
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-JUL-20	15-JUL-20	R5156656
F3 (C16-C34)	<0.25		0.25	mg/L	15-JUL-20	15-JUL-20	R5156656
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUL-20	15-JUL-20	R5156656
Surrogate: 2-Bromobenzotrifluoride	97.3		60-140	%	15-JUL-20	15-JUL-20	R5156656
CCME Total Hydrocarbons F1-BTEX	<0.10		0.10	mg/L		20-JUL-20	
F2-Naphth	<0.10		0.10	mg/L		20-JUL-20 20-JUL-20	
F3-PAH	<0.25		0.10	mg/L		20-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		20-JUL-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		16-JUL-20	
Total and E. coli, 1:10 dilution by QT97							
Total Coliforms	4880	MBHT	10	MPN/100mL		14-JUL-20	R5154004
Escherichia Coli	3650	MBHT	10	MPN/100mL		14-JUL-20	R5154004
CCME PAHs in mg/L 1-Methyl Naphthalene	<0.000020		0.000020	ma/l	16-JUL-20	20-JUL-20	D5159050
2-Methyl Naphthalene	<0.000020		0.000020	mg/L mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059 R5158059
	3.000020		3.300020	9, -	.5 552 20		1.0.0000

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2473824-3 ARV-5							
Sampled By: CLIENT on 13-JUL-20 @ 09:14							
Matrix: WATER							
CCME PAHs in mg/L							
Acenaphthene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Acenaphthylene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Anthracene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Acridine	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(a)anthracene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(a)pyrene Benzo(b&j)fluoranthene	<0.0000050		0.0000050		16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Benzo(g,h,i)perylene	<0.000010 <0.000020		0.000010	mg/L mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059 R5158059
Benzo(k)fluoranthene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Chrysene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	16-JUL-20	20-JUL-20	R5158059
Fluoranthene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Fluorene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Naphthalene	<0.000050		0.000050	mg/L	16-JUL-20	20-JUL-20	R5158059
Phenanthrene	<0.000050		0.000050	mg/L	16-JUL-20	20-JUL-20	R5158059
Pyrene Quinoline	<0.000010 <0.000020		0.000010	mg/L	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059 R5158059
B(a)P Total Potency Equivalent	<0.000020		0.000020	mg/L mg/L	16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Surrogate: d8-Naphthalene	95.9		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d10-Phenanthrene	98.1		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d12-Chrysene	84.8		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d10-Acenaphthene	91.2		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d9-Acridine (SS)	93.7		50-150	%	16-JUL-20	20-JUL-20	R5158059
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	71.4		1.2	mg/L		16-JUL-20	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		16-JUL-20	
Alkalinity, Hydroxide	<0.00		0.00	IIIg/L		10-301-20	
Hydroxide (OH)	<0.34		0.34	mg/L		16-JUL-20	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	58.5		1.0	mg/L		15-JUL-20	R5154480
Ammonia by colour	30.0		1.0	IIIg/L		13-30L-20	130104400
Ammonia, Total (as N)	0.072		0.010	mg/L		21-JUL-20	R5161278
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	2.3		2.0	mg/L		15-JUL-20	R5159515
Carbonaceous BOD BOD Carbonaceous	<2.0		2.0	mg/L		15-JUL-20	R5159515
Chloride in Water by IC	72.0		2.0	9, _		10 001-20	1.0100010
Chloride (CI)	174		0.50	mg/L		14-JUL-20	R5159802
Conductivity Conductivity	694		1.0	umhos/cm		15-JUL-20	R5154480
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	3260	MBHT	10	MPN/100mL		14-JUL-20	R5153984
Hardness Calculated Hardness (as CaCO3)	106	HTC	0.20	mg/L		20-JUL-20	
Mercury Total  Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	16-JUL-20	16-JUL-20	R5156978
Nitrate in Water by IC	~0.0000000		0.0000000	ilig/L	10-00L-20	10-00L-20	13130310
Nitrate (as N) Nitrate+Nitrite	<0.020		0.020	mg/L		14-JUL-20	R5159802
NILTACE+NITTICE							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
1.2472924.2 ADV 5							
L2473824-3 ARV-5							
Sampled By: CLIENT on 13-JUL-20 @ 09:14							
Matrix: WATER							
Nitrate+Nitrite Nitrate and Nitrite as N	-0.070		0.070	/I		21-JUL-20	
	<0.070		0.070	mg/L		21-JUL-20	
Nitrite in Water by IC Nitrite (as N)	<0.010		0.010	mg/L		14-JUL-20	R5159802
Oil & Grease - Gravimetric	40.010		0.010	1119/12		14 002 20	113133002
Oil and Grease	<5.0		5.0	mg/L		21-JUL-20	R5161499
Phenol (4AAP)				_			
Phenols (4AAP)	<0.0010		0.0010	mg/L		16-JUL-20	R5156146
Phosphorus, Total							
Phosphorus (P)-Total	0.159		0.0030	mg/L		17-JUL-20	R5157047
Sulfate in Water by IC	0.05		0.00			44 1111 00	DE450000
Sulfate (SO4)	6.25		0.30	mg/L		14-JUL-20	R5159802
Total Metals in Water by CRC ICPMS Aluminum (AI)-Total	0.148		0.0030	mg/L	16-JUL-20	16-JUL-20	R5156998
Arsenic (As)-Total	0.148		0.0030	mg/L	16-JUL-20 16-JUL-20	16-JUL-20	R5156998
Cadmium (Cd)-Total	0.00000		0.000000	mg/L	16-JUL-20	16-JUL-20	R5156998
Calcium (Ca)-Total	19.4		0.050	mg/L	16-JUL-20	16-JUL-20	R5156998
Chromium (Cr)-Total	0.00072		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Cobalt (Co)-Total	0.00041		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Copper (Cu)-Total	0.00074		0.00050	mg/L	16-JUL-20	16-JUL-20	R5156998
Iron (Fe)-Total	3.69		0.010	mg/L	16-JUL-20	16-JUL-20	R5156998
Lead (Pb)-Total	0.000311		0.000050	mg/L	16-JUL-20	16-JUL-20	R5156998
Magnesium (Mg)-Total	13.9		0.0050	mg/L	16-JUL-20	16-JUL-20	R5156998
Manganese (Mn)-Total	0.350		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Nickel (Ni)-Total	0.00078		0.00050	mg/L	16-JUL-20	16-JUL-20	R5156998
Potassium (K)-Total Sodium (Na)-Total	6.18 89.2		0.050 0.050	mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998 R5156998
Zinc (Zn)-Total	0.0209		0.000	mg/L mg/L	16-JUL-20 16-JUL-20	16-JUL-20	R5156998
Total Organic Carbon by Combustion	0.0209		0.0030	IIIg/L	10-30L-20	10-301-20	K3130990
Total Organic Carbon by Combustion  Total Organic Carbon	11.0		0.50	mg/L		17-JUL-20	R5158394
Total Suspended Solids				Ü			
Total Suspended Solids	9.1		3.0	mg/L		20-JUL-20	R5160054
рН							
pH	7.38		0.10	pH units		15-JUL-20	R5154480
L2473824-4 ARV-6							
Sampled By: CLIENT on 13-JUL-20 @ 09:31							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS		1/00:15				40 11 11 25	
Benzene	<0.00050	VOCHS	0.00050	mg/L		16-JUL-20	R5154921
Toluene Ethyl benzene	<0.0010 <0.00050	VOCHS	0.0010 0.00050	mg/L		16-JUL-20 16-JUL-20	R5154921 R5154921
o-Xylene	<0.00050	VOCHS	0.00050	mg/L mg/L		16-JUL-20 16-JUL-20	R5154921 R5154921
m+p-Xylenes	<0.00050	VOCHS	0.00030	mg/L		16-JUL-20	R5154921 R5154921
F1 (C6-C10)	<0.10	VOCHS	0.00040	mg/L		16-JUL-20	R5154921
Surrogate: 4-Bromofluorobenzene (SS)	85.7		70-130	//g/L %		16-JUL-20	R5154921
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	15-JUL-20	15-JUL-20	R5156656
F3 (C16-C34)	<0.25		0.25	mg/L	15-JUL-20	15-JUL-20	R5156656
F4 (C34-C50)	<0.25		0.25	mg/L	15-JUL-20	15-JUL-20	R5156656
Surrogate: 2-Bromobenzotrifluoride	95.4		60-140	%	15-JUL-20	15-JUL-20	R5156656
CCME Total Hydrocarbons							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
1.2472924 4 ADV 6							
L2473824-4 ARV-6 Sampled By: CLIENT on 13-JUL-20 @ 09:31							
Matrix: WATER							
CCME Total Hydrocarbons F1-BTEX	<0.10		0.10	mg/L		20-JUL-20	
F2-Naphth	<0.10		0.10	mg/L		20-JUL-20 20-JUL-20	
F3-PAH	<0.10		0.10	mg/L		20-JUL-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		20-JUL-20	
Sum of Xylene Isomer Concentrations	0.00		0.00				
Xylenes (Total)	<0.00064		0.00064	mg/L		16-JUL-20	
Total and E. coli, 1:10 dilution by QT97	400	MBHT	40	MDN/400mal		14-JUL-20	D5454004
Total Coliforms Escherichia Coli	120 <10	MBHT	10 10	MPN/100mL MPN/100mL		14-JUL-20 14-JUL-20	R5154004 R5154004
CCME PAHs in mg/L	<10	WIDITI	10	IVIFIN/ TOUTIL		14-JUL-20	R5154004
1-Methyl Naphthalene	0.000028		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Acenaphthene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Acenaphthylene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Anthracene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Acridine	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(a)anthracene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(a)pyrene	<0.0000050		0.0000050	1 -	16-JUL-20	20-JUL-20	R5158059
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Chrysene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Dibenzo(a,h)anthracene Fluoranthene	<0.0000050		0.0000050 0.000020	1 -	16-JUL-20 16-JUL-20	20-JUL-20 20-JUL-20	R5158059 R5158059
Fluorene	<0.000020 <0.000020		0.000020	mg/L mg/L	16-JUL-20	20-JUL-20 20-JUL-20	R5158059
Indeno(1,2,3-cd)pyrene	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
Naphthalene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Phenanthrene	<0.000050		0.000050	mg/L	16-JUL-20	20-JUL-20	R5158059
Pyrene	<0.000010		0.000010	mg/L	16-JUL-20	20-JUL-20	R5158059
Quinoline	<0.000020		0.000020	mg/L	16-JUL-20	20-JUL-20	R5158059
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	16-JUL-20	20-JUL-20	R5158059
Surrogate: d8-Naphthalene	91.9		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d10-Phenanthrene	93.0		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d12-Chrysene	64.9		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d10-Acenaphthene	88.7		50-150	%	16-JUL-20	20-JUL-20	R5158059
Surrogate: d9-Acridine (SS)	88.3		50-150	%	16-JUL-20	20-JUL-20	R5158059
Nunavut WW Group 1 Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	121		1.2	mg/L		16-JUL-20	
Alkalinity, Carbonate			·· <b>-</b>	3			
Carbonate (CO3)	<0.60		0.60	mg/L		16-JUL-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		16-JUL-20	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	99.1		1.0	mg/L		15-JUL-20	R5154480
Ammonia by colour Ammonia, Total (as N)	0.053		0.010	mg/L		21-JUL-20	R5161278
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	3.0		2.0	mg/L		15-JUL-20	R5159515
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		15-JUL-20	R5159515

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2473824-4 ARV-6							
Sampled By: CLIENT on 13-JUL-20 @ 09:31							
Matrix: WATER							
Chloride in Water by IC							
Chloride (Cl)	132		0.50	mg/L		14-JUL-20	R5159802
Conductivity Conductivity	604		1.0	umhos/cm		15-JUL-20	R5154480
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms Hardness Calculated	<10	MBHT	10	MPN/100mL		14-JUL-20	R5153984
Hardness (as CaCO3)	145	HTC	0.20	mg/L		20-JUL-20	
Mercury Total Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	16-JUL-20	16-JUL-20	R5156978
Nitrate in Water by IC Nitrate (as N)	<0.020		0.020	mg/L		14-JUL-20	R5159802
Nitrate+Nitrite							1.010002
Nitrate and Nitrite as N Nitrite in Water by IC	<0.070		0.070	mg/L		21-JUL-20	
Nitrite (as N)	<0.010		0.010	mg/L		14-JUL-20	R5159802
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		21-JUL-20	R5161499
Phenol (4AAP) Phenols (4AAP)	0.0026		0.0010	mg/L		16-JUL-20	R5156146
Phosphorus, Total							
Phosphorus (P)-Total  Sulfate in Water by IC	0.0324		0.0030	mg/L		17-JUL-20	R5157047
Sulfate (SO4)	<0.30		0.30	mg/L		14-JUL-20	R5159802
Total Metals in Water by CRC ICPMS	0.0004		0.0000		40 1111 00	40 1111 20	D5450000
Aluminum (AI)-Total	0.0934 0.00083		0.0030 0.00010	mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998 R5156998
Arsenic (As)-Total Cadmium (Cd)-Total	0.00003		0.00010	mg/L mg/L	16-JUL-20	16-JUL-20	R5156998
Calcium (Ca)-Total	40.0		0.050	mg/L	16-JUL-20	16-JUL-20	R5156998
Chromium (Cr)-Total	0.00075		0.00010	mg/L	16-JUL-20	16-JUL-20	R5156998
Cobalt (Co)-Total	0.00075		0.00010		16-JUL-20	16-JUL-20	R5156998
· '	0.00233		0.00010	mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998
Copper (Cu)-Total Iron (Fe)-Total	18.1		0.00050	mg/L	16-JUL-20	16-JUL-20	R5156998
1 ' '				mg/L	16-JUL-20	16-JUL-20	
Lead (Pb)-Total Magnesium (Mg)-Total	0.000290 11.0		0.000050 0.0050	mg/L		16-JUL-20 16-JUL-20	R5156998
, 3,				mg/L	16-JUL-20		R5156998
Manganese (Mn)-Total Nickel (Ni)-Total	2.08 0.00122		0.00010 0.00050	mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998
Potassium (K)-Total			0.00050	mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998 R5156998
Sodium (Na)-Total	6.36 53.0			mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	I I
Zinc (Zn)-Total	0.0810		0.050 0.0030	mg/L mg/L	16-JUL-20 16-JUL-20	16-JUL-20 16-JUL-20	R5156998 R5156998
Total Organic Carbon by Combustion	0.0010		0.0030	IIIg/L	10-00L-20	10-30L-20	179190880
Total Organic Carbon	10.4		0.50	mg/L		17-JUL-20	R5158394
Total Suspended Solids Total Suspended Solids	44.3		3.0	mg/L		20-JUL-20	R5160054
рН						15 1111 20	
pH	7.09		0.10	pH units		15-JUL-20	R5154480

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

PAGE 11 of 13 Version: FINAL

#### Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
В	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MBHT	The APHA 30 hour hold time was exceeded for microbiological testing. Samples processed within 48 hours from time of sampling may be valid in some cases (refer to Health Canada guidance).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
VOCHS	VOC analysis was conducted for a water sample that contained > 5% headspace. Results may be biased low.

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

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

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

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

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

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

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

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

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

BOD-CBOD-WP Water Carbonaceous BOD APHA 5210 B

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

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

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

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

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

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

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

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

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

EC-WP Water Conductivity APHA 2510B

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

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

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

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

#### Reference Information

PAGE 12 of 13 Version: FINAL

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

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

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

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

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

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

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

F2-F4-FID-WP Water CCME PHC F2-F4 in Water **FPA 3511** 

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

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

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

HARDNESS-CALC-WP Water Hardness Calculated **APHA 2340B** 

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

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

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

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

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

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

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

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

nitroprusside and measured colourmetrically.

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

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

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

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

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

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

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

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

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

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

Water **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.

L2473824 CONTD....

PAGE 13 of 13 Version: FINAL

#### Reference Information

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

**ALS Test Code** Matrix Method Reference\*\* **Test Description EPA 9066** PHENOLS-4AAP-WT Water Phenol (4AAP)

An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

SO4-IC-N-WP Water Sulfate in Water by IC EPA 300.1 (mod)

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

SOLIDS-TOTSUS-WP Water **Total Suspended Solids** APHA 2540 D (modified) Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105 C.

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

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

XYLENES-SUM-CALC-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:

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

#### **Chain of Custody Numbers:**

#### **GLOSSARY OF REPORT TERMS**

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

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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



Workorder: L2473824 Report Date: 22-JUL-20 Page 1 of 9

Client: Nunavut Community & Government Services - Rankin Inlet

Box 278

Arviat NU X0C 0E0

Contact: ADAM ELDER / AGLUKAQ TARTAK (Arviat)

est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	Water							
Batch R5154480	)							
WG3363682-14 LCS								
Alkalinity, Total (as Cat	CO3)		103.0		%		85-115	15-JUL-20
WG3363682-11 MB	000)		.4.0					
Alkalinity, Total (as Cat	CO3)		<1.0		mg/L		1	15-JUL-20
8 O D-C B O D-W P	Water							
Batch R5159515	5							
WG3362051-7 LCS			404.0		0/			
BOD Carbonaceous			104.0		%		85-115	15-JUL-20
WG3362051-6 MB BOD Carbonaceous			<2.0		mg/L		2	15-JUL-20
			٠٤.٥		mg/L		۷	10-JUL-20
BOD-WP	Water							
Batch R5159515	5							
WG3362051-7 LCS Biochemical Oxygen D	emand		108.1		%		85-115	15 11 11 00
	Citiana		100.1		70		00-110	15-JUL-20
WG3362051-6 MB Biochemical Oxygen D	emand		<2.0		mg/L		2	15-JUL-20
BTEXS+F1-HSMS-WP	Water				-			
Batch R5154921								
WG3362937-2 LCS	•							
Benzene			94.2		%		70-130	15-JUL-20
Toluene			90.7		%		70-130	15-JUL-20
Ethyl benzene			94.0		%		70-130	15-JUL-20
o-Xylene			103.9		%		70-130	15-JUL-20
•								
m+p-Xylenes			94.6		%		70-130	15-JUL-20
-			94.6		%		70-130	15-JUL-20
m+p-Xylenes			94.6 87.1		%		70-130 70-130	15-JUL-20 15-JUL-20
m+p-Xylenes  WG3362937-3 LCS F1 (C6-C10)  WG3362937-1 MB			87.1		%		70-130	15-JUL-20
m+p-Xylenes  WG3362937-3 LCS F1 (C6-C10)  WG3362937-1 MB Benzene			87.1 <0.00050		% mg/L		70-130 0.0005	
m+p-Xylenes  WG3362937-3 LCS F1 (C6-C10)  WG3362937-1 MB Benzene Toluene			87.1 <0.00050 <0.0010		% mg/L mg/L		70-130 0.0005 0.001	15-JUL-20 15-JUL-20 15-JUL-20
m+p-Xylenes WG3362937-3 LCS F1 (C6-C10) WG3362937-1 MB Benzene Toluene Ethyl benzene			87.1 <0.00050 <0.0010 <0.00050		% mg/L mg/L mg/L		70-130 0.0005 0.001 0.0005	15-JUL-20 15-JUL-20
m+p-Xylenes  WG3362937-3 LCS F1 (C6-C10)  WG3362937-1 MB Benzene Toluene Ethyl benzene o-Xylene			87.1 <0.00050 <0.0010 <0.00050 <0.00050		% mg/L mg/L		70-130 0.0005 0.001	15-JUL-20 15-JUL-20 15-JUL-20
m+p-Xylenes  WG3362937-3 F1 (C6-C10)  WG3362937-1 Benzene Toluene Ethyl benzene o-Xylene m+p-Xylenes			87.1 <0.00050 <0.0010 <0.00050		% mg/L mg/L mg/L		70-130 0.0005 0.001 0.0005	15-JUL-20 15-JUL-20 15-JUL-20 15-JUL-20 15-JUL-20
m+p-Xylenes  WG3362937-3 LCS F1 (C6-C10)  WG3362937-1 MB Benzene Toluene Ethyl benzene o-Xylene			87.1 <0.00050 <0.0010 <0.00050 <0.00050		% mg/L mg/L mg/L mg/L		70-130 0.0005 0.001 0.0005 0.0005	15-JUL-20 15-JUL-20 15-JUL-20 15-JUL-20



Workorder: L2473824

Report Date: 22-JUL-20

Page 2 of 9

Test	Matrix	Reference	Result C	ualifier	Units	RPD	Limit	Analyzed
C-TOC-HTC-WP	Water							
Batch R5158394 WG3366084-2 LCS								
Total Organic Carbon			102.6		%		80-120	17-JUL-20
WG3366084-6 LCS Total Organic Carbon			102.6		%		80-120	17-JUL-20
WG3366084-1 MB Total Organic Carbon			<0.50		mg/L		0.5	17-JUL-20
WG3366084-5 MB Total Organic Carbon			<0.50		mg/L		0.5	17-JUL-20
CL-IC-N-WP	Water							
Batch R5159802								
WG3362114-10 LCS Chloride (CI)			103.7		%		90-110	14-JUL-20
WG3362114-9 MB Chloride (CI)			<0.50		mg/L		0.5	14-JUL-20
EC-WP	Water							
Batch R5154480 WG3363682-13 LCS Conductivity			98.0		%		90-110	15-JUL-20
WG3363682-11 MB			30.0		70		90-110	15-JUL-20
Conductivity			<1.0		umhos/cm		1	15-JUL-20
F2-F4-FID-WP	Water							
Batch R5156656								
<b>WG3362782-1 MB</b> F2 (C10-C16)			<0.10		mg/L		0.1	15-JUL-20
F3 (C16-C34)			<0.25		mg/L		0.25	15-JUL-20
F4 (C34-C50)			<0.25		mg/L		0.25	15-JUL-20
Surrogate: 2-Bromoben:	zotrifluoride		101.4		%		60-140	15-JUL-20
FC10-QT97-WP	Water							
Batch R5153984								
WG3362306-1 MB Fecal Coliforms			<1		MPN/100mL		1	14-JUL-20
HG-T-CVAA-WP	Water							
Batch R5156978								
WG3364116-3 DUP Mercury (Hg)-Total		<b>L2473824-4</b> < 0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	16-JUL-20
WG3364115-2 LCS								



Workorder: L2473824

Report Date: 22-JUL-20

Page 3 of 9

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-T-CVAA-WP	Water							
Batch R5156978								
WG3364115-2 LCS Mercury (Hg)-Total			112.0		%		00.400	40 1111 20
WG3364116-2 LCS			112.0		70		80-120	16-JUL-20
Mercury (Hg)-Total			112.0		%		80-120	16-JUL-20
WG3364115-1 MB Mercury (Hg)-Total			<0.000005	5C	mg/L		0.000005	16-JUL-20
WG3364116-1 MB Mercury (Hg)-Total			<0.000005	5C	mg/L		0.000005	16-JUL-20
MET-T-CCMS-WP	Water							
Batch R5156998								
WG3363385-2 LCS					•			
Aluminum (Al)-Total			98.4		%		80-120	16-JUL-20
Arsenic (As)-Total			96.4		%		80-120	16-JUL-20
Cadmium (Cd)-Total			96.9		%		80-120	16-JUL-20
Calcium (Ca)-Total			96.8		%		80-120	16-JUL-20
Chromium (Cr)-Total			95.8		%		80-120	16-JUL-20
Cobalt (Co)-Total			94.5 95.1		% %		80-120	16-JUL-20
Copper (Cu)-Total			95.1		% %		80-120	16-JUL-20
Iron (Fe)-Total			96.4 97.3				80-120	16-JUL-20
Lead (Pb)-Total			97.3 98.9		% %		80-120	16-JUL-20
Magnesium (Mg)-Total			96.9 98.1		% %		80-120	16-JUL-20
Manganese (Mn)-Total Nickel (Ni)-Total			93.8		%		80-120	16-JUL-20
Potassium (K)-Total			98.9		%		80-120	16-JUL-20
Sodium (Na)-Total			93.7		%		80-120 80-120	16-JUL-20
Zinc (Zn)-Total			98.8		%		80-120	16-JUL-20
WG3363385-1 MB			30.0		70		00-120	16-JUL-20
Aluminum (Al)-Total			<0.0030		mg/L		0.003	16-JUL-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	16-JUL-20
Cadmium (Cd)-Total			<0.000005	5C	mg/L		0.000005	16-JUL-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	16-JUL-20
Chromium (Cr)-Total			0.00019	В	mg/L		0.0001	16-JUL-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	16-JUL-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	16-JUL-20
Iron (Fe)-Total			<0.010		mg/L		0.01	16-JUL-20
Lead (Pb)-Total			<0.000050	)	mg/L		0.00005	16-JUL-20



Workorder: L2473824

Report Date: 22-JUL-20

Page 4 of 9

						•			.go
Test		Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP		Water							
Batch R51	156998								
WG3363385-1	MB			-0.0050		0			
Magnesium (Mg)				<0.0050		mg/L		0.005	16-JUL-20
Manganese (Mn				<0.00010		mg/L		0.0001	16-JUL-20
Nickel (Ni)-Total				<0.00050		mg/L		0.0005	16-JUL-20
Potassium (K)-T				<0.050		mg/L		0.05	16-JUL-20
Sodium (Na)-Tot	tal			<0.050		mg/L		0.05	16-JUL-20
Zinc (Zn)-Total				<0.0030		mg/L		0.003	16-JUL-20
NH3-COL-WP		Water							
Batch R51	157280								
WG3364967-10						0.4			
Ammonia, Total				99.7		%		85-115	16-JUL-20
WG3364967-9 Ammonia, Total	MB			<0.010		mg/L		0.01	40 1111 20
	, ,			<b>\0.010</b>		IIIg/L		0.01	16-JUL-20
	161278								
WG3367870-2 Ammonia, Total	LCS (as N)			101.0		%		85-115	21-JUL-20
WG3367870-1	MB			101.0		70		03-113	21-30L-20
Ammonia, Total				<0.010		mg/L		0.01	21-JUL-20
NO2-IC-N-WP		Water							
Batch R51	159802								
WG3362114-10	LCS								
Nitrite (as N)				107.5		%		90-110	14-JUL-20
WG3362114-9	MB								
Nitrite (as N)				<0.010		mg/L		0.01	14-JUL-20
NO3-IC-N-WP		Water							
Batch R51	159802								
WG3362114-10	LCS								
Nitrate (as N)				105.1		%		90-110	14-JUL-20
WG3362114-9	MB			<0.020		m a /l		0.00	44 1111 00
Nitrate (as N)				<0.020		mg/L		0.02	14-JUL-20
OG-GRAV-WP		Water							
	161499								
	LCS			01.1		0/.		70.400	04 !!!! 00
Oil and Grease	мв			91.1		%		70-130	21-JUL-20
WG3367113-1 Oil and Grease	MB			<5.0		mg/L		5	21-JUL-20
On and Orcase				-0.0		mg/L		5	Z 1-JUL-ZU
P-T-COL-WP		Water							



Workorder: L2473824

Report Date: 22-JUL-20

Page 5 of 9

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-WP	Water							
Batch R5157047 WG3364533-6 LCS Phosphorus (P)-Total			97.5		%		80-120	17-JUL-20
WG3364533-5 MB Phosphorus (P)-Total			<0.0030		mg/L		0.003	17-JUL-20
PAH-CCME-PPM-WT	Water							
Batch R5158059 WG3364045-2 LCS 1-Methyl Naphthalene			91.4		%		50-150	20-JUL-20
2-Methyl Naphthalene			91.5		%		50-150	20-JUL-20
Acenaphthene			98.6		%		50-150	20-JUL-20
Acenaphthylene			91.3		%		50-150	20-JUL-20
Anthracene			100.8		%		50-150	20-JUL-20
Acridine			96.7		%		50-150	20-JUL-20
Benzo(a)anthracene			102.2		%		50-150	20-JUL-20
Benzo(a)pyrene			99.5		%		50-150	20-JUL-20
Benzo(b&j)fluoranthene			99.3		%		50-150	20-JUL-20
Benzo(g,h,i)perylene			113.8		%		50-150	20-JUL-20
Benzo(k)fluoranthene			95.8		%		50-150	20-JUL-20
Chrysene			102.6		%		50-150	20-JUL-20
Dibenzo(a,h)anthracene	<b>)</b>		102.3		%		50-150	20-JUL-20
Fluoranthene			94.9		%		50-150	20-JUL-20
Fluorene			96.4		%		50-150	20-JUL-20
Indeno(1,2,3-cd)pyrene			102.4		%		50-150	20-JUL-20
Naphthalene			93.4		%		50-150	20-JUL-20
Phenanthrene			106.8		%		50-150	20-JUL-20
Pyrene			97.1		%		50-150	20-JUL-20
Quinoline			106.9		%		50-150	20-JUL-20
WG3364045-1 MB 1-Methyl Naphthalene			<0.000020	)	mg/L		0.00002	20-JUL-20
2-Methyl Naphthalene			<0.000020	)	mg/L		0.00002	20-JUL-20
Acenaphthene			<0.000020	)	mg/L		0.00002	20-JUL-20
Acenaphthylene			<0.000020	)	mg/L		0.00002	20-JUL-20
Anthracene			<0.000010	)	mg/L		0.00001	20-JUL-20
Acridine			<0.000020	)	mg/L		0.00002	20-JUL-20
Benzo(a)anthracene			<0.000010	)	mg/L		0.00001	20-JUL-20
Benzo(a)pyrene			<0.00000	5C	mg/L		0.000005	20-JUL-20



Workorder: L2473824

Report Date: 22-JUL-20

Page 6 of 9

Benzo(g,h,i)perylene	Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
WG3364045-1 MB         Berazo(ph.j)perylene         <0.000010         mg/L         0.00001         20-JUL           Benzo(gh.j)perylene         <0.000020	PAH-CCME-PPM-WT	Water							
Benzo(b&i)fluoranthene	Batch R515805	9							
Benzo(g,h,l)perylene									
Benzo(k)fluoranthene		ne		<0.000010				0.00001	20-JUL-20
Chrysene				<0.000020		mg/L		0.00002	20-JUL-20
Dibenzo(a,h)anthracene	Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	20-JUL-20
Fluoranthene	Chrysene			<0.000020		mg/L		0.00002	20-JUL-20
Fluorene	Dibenzo(a,h)anthrace	ne		<0.0000050		mg/L		0.000005	20-JUL-20
Indeno(1,2,3-cd)pyrene	Fluoranthene			<0.000020		mg/L		0.00002	20-JUL-20
Naphthalene	Fluorene			<0.000020		mg/L		0.00002	20-JUL-20
Phenanthrene	Indeno(1,2,3-cd)pyren	ie		<0.000010		mg/L		0.00001	20-JUL-20
Pyrene	Naphthalene			<0.000050		mg/L		0.00005	20-JUL-20
Quinoline       <0.000020	Phenanthrene			<0.000050		mg/L		0.00005	20-JUL-20
Surrogate: d8-Naphthalene 100.5 % 50-150 20-JU Surrogate: d10-Phenanthrene 99.5 % 50-150 20-JU Surrogate: d10-Phenanthrene 99.5 % 50-150 20-JU Surrogate: d10-Acenaphthene 95.8 % 50-150 20-JU Surrogate: d10-Acenaphthene 95.8 % 50-150 20-JU Surrogate: d9-Acridine (SS) 87.8 % 50-150 20-JU Surrogate: d9-Acridine (SS) 87.	Pyrene			<0.000010		mg/L		0.00001	20-JUL-20
Surrogate: d10-Phenanthrene 99.5 % 50-150 20-JU Surrogate: d12-Chrysene 88.4 % 50-150 20-JU Surrogate: d10-Acenaphthene 95.8 % 50-150 20-JU Surrogate: d9-Acridine (SS) 87.8 % 50-150 20-JU PH-WP Water  Batch R5154480 WG3363682-12 LCS pH 7.39 pH units 7.3-7.5 15-JU PHENOLS-4AAP-WT Water  Batch R5156146 WG3364233-3 DUP L2473824-3 Phenols (4AAP) < 0.0010 < 0.0010 RPD-NA mg/L N/A 20 16-JU WG3364233-1 MB Phenols (4AAP) 97.9 % 85-115 16-JU WG3364233-1 MB Phenols (4AAP) < 0.0010 mg/L 0.001 16-JU WG3364233-4 MS L2473824-3	Quinoline			<0.000020		mg/L		0.00002	20-JUL-20
Surrogate: d12-Chrysene	Surrogate: d8-Naphtha	alene		100.5		%		50-150	20-JUL-20
Surrogate: d10-Acenaphthene 95.8 % 50-150 20-JU Surrogate: d9-Acridine (SS) 87.8 % 50-150 20-JU PH-WP Water  Batch R5154480 WG3363682-12 LCS pH 7.39 pH units 7.3-7.5 15-JU PHENOLS-4AAP-WT Water  Batch R5156146 WG3364233-3 DUP L2473824-3 Phenols (4AAP) <0.0010 <0.0010 RPD-NA mg/L N/A 20 16-JU WG3364233-1 MB Phenols (4AAP) 97.9 % 85-115 16-JU WG3364233-1 MB Phenols (4AAP) <0.0010 mg/L 0.001 16-JU WG3364233-4 MS L2473824-3	Surrogate: d10-Phena	inthrene		99.5		%		50-150	20-JUL-20
Surrogate: d9-Acridine (SS) 87.8 % 50-150 20-JU PH-WP Water  Batch R5154480 WG3363682-12 LCS pH 7.39 pH units 7.3-7.5 15-JU PHENOLS-4AAP-WT Water  Batch R5156146 WG3364233-3 DUP L2473824-3 Phenols (4AAP) < 0.0010	Surrogate: d12-Chryse	ene		88.4		%		50-150	20-JUL-20
PH-WP Water  Batch R5154480  WG3363682-12 LCS pH 7.39 pH units 7.3-7.5 15-Ju  PHENOLS-4AAP-WT Water  Batch R5156146  WG3364233-3 DUP L2473824-3 Phenols (4AAP)	Surrogate: d10-Acena	phthene		95.8		%		50-150	20-JUL-20
Batch R5154480 WG3363682-12 LCS pH	Surrogate: d9-Acridine	e (SS)		87.8		%		50-150	20-JUL-20
WG3363682-12 LCS pH 7.39 pH units 7.3-7.5 15-JU  PHENOLS-4AAP-WT Water  Batch R5156146  WG3364233-3 DUP L2473824-3 Phenols (4AAP) <0.0010 <0.0010 RPD-NA mg/L N/A 20 16-JU  WG3364233-2 LCS Phenols (4AAP) 97.9 % 85-115 16-JU  WG3364233-1 MB Phenols (4AAP) <0.0010 mg/L 0.001 16-JU  WG3364233-4 MS L2473824-3	PH-WP	Water							
PHENOLS-4AAP-WT Water  Batch R5156146  WG3364233-3 DUP L2473824-3 Phenols (4AAP) < 0.0010	Batch R515448	0							
## PHENOLS-4AAP-WT Water    Batch									
Batch R5156146         WG3364233-3 Phenols (4AAP)       L2473824-3        RPD-NA       mg/L       N/A       20       16-JU         WG3364233-2 Phenols (4AAP)       LCS       97.9       %       85-115       16-JU         WG3364233-1 Phenols (4AAP)       MB       CO.0010       mg/L       0.001       16-JU         WG3364233-4 MS       MS       L2473824-3       L2473824-3       L2473824-3	рН			7.39		pH units		7.3-7.5	15-JUL-20
Batch R5156146         WG3364233-3 Phenols (4AAP)       L2473824-3        RPD-NA       mg/L       N/A       20       16-JU         WG3364233-2 Phenols (4AAP)       LCS       97.9       %       85-115       16-JU         WG3364233-1 Phenols (4AAP)       MB       CO.0010       mg/L       0.001       16-JU         WG3364233-4 MS       MS       L2473824-3       L2473824-3       L2473824-3	PHENOLS-4AAP-WT	Water							
WG3364233-3         DUP         L2473824-3           Phenols (4AAP)         < 0.0010		.6							
Phenols (4AAP)       < 0.0010       < 0.0010       RPD-NA       mg/L       N/A       20       16-JU         WG3364233-2       LCS         Phenols (4AAP)       97.9       %       85-115       16-JU         WG3364233-1       MB       MB       CO.0010       mg/L       0.001       16-JU         WG3364233-4       MS       L2473824-3			L2473824-3						
Phenols (4AAP)       97.9       %       85-115       16-JU         WG3364233-1 Phenols (4AAP)       MB        <0.0010	Phenols (4AAP)			<0.0010	RPD-NA	mg/L	N/A	20	16-JUL-20
WG3364233-1         MB           Phenols (4AAP)         <0.0010				97.9		%		85-115	16-JUL-20
				<0.0010		mg/L		0.001	16-JUL-20
			L2473824-3	91.4		%		75-125	16-JUL-20
SO4-IC-N-WP Water	SO4-IC-N-WP	Water							



Workorder: L2473824

Report Date: 22-JUL-20

Page 7 of 9

lest lest	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-WP	Water							
Batch R5159802								
<b>WG3362114-10 LCS</b> Sulfate (SO4)			103.5		%		90-110	14-JUL-20
<b>WG3362114-9 MB</b> Sulfate (SO4)			<0.30		mg/L		0.3	14-JUL-20
OLIDS-TOTSUS-WP	Water							
Batch R5160054								
WG3366026-2 LCS Total Suspended Solids			88.8		%		85-115	20-JUL-20
WG3366026-1 MB Total Suspended Solids			<3.0		mg/L		3	20-JUL-20
C,EC10-QT97-WP	Water							
Batch R5154004								
WG3362301-2 DUP		L2473824-1	470		MDN/400ml	0.0	0.5	
Total Coliforms		510	470		MPN/100mL	8.3	65	14-JUL-20
Escherichia Coli		50	40		MPN/100mL	24	65	14-JUL-20
WG3362301-1 MB Total Coliforms			<1		MPN/100mL		1	14-JUL-20
Escherichia Coli			<1		MPN/100mL		1	14-JUL-20

Workorder: L2473824 Report Date: 22-JUL-20 Page 8 of 9

#### Legend:

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

#### **Sample Parameter Qualifier Definitions:**

Qualifier	Description
В	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Workorder: L2473824 Report Date: 22-JUL-20

Page 9 of 9

#### **Hold Time Exceedances:**

	Sample						
ALS Product Description	ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
рН							
	1	13-JUL-20 08:58	15-JUL-20 12:00	0.25	51	hours	EHTR-FM
	2	13-JUL-20 08:40	15-JUL-20 12:00	0.25	51	hours	EHTR-FM
	3	13-JUL-20 09:14	15-JUL-20 12:00	0.25	51	hours	EHTR-FM
	4	13-JUL-20 09:31	15-JUL-20 12:00	0.25	50	hours	EHTR-FM
<b>Bacteriological Tests</b>							
Fecal coliforms, 1:10 dilution	n by QT97						
	1	13-JUL-20 08:58	14-JUL-20 18:00	30	33	hours	EHTL
	2	13-JUL-20 08:40	14-JUL-20 18:00	30	33	hours	EHTL
	3	13-JUL-20 09:14	14-JUL-20 18:00	30	33	hours	EHTL
	4	13-JUL-20 09:31	14-JUL-20 18:00	30	32	hours	EHTL
Total and E. coli, 1:10 diluti	on by QT97						
	1	13-JUL-20 08:58	14-JUL-20 18:00	30	33	hours	EHTL
	2	13-JUL-20 08:40	14-JUL-20 18:00	30	33	hours	EHTL
	3	13-JUL-20 09:14	14-JUL-20 18:00	30	33	hours	EHTL
	4	13-JUL-20 09:31	14-JUL-20 18:00	30	32	hours	EHTL

#### Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

#### Notes\*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes. Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2473824 were received on 14-JUL-20 13:00.

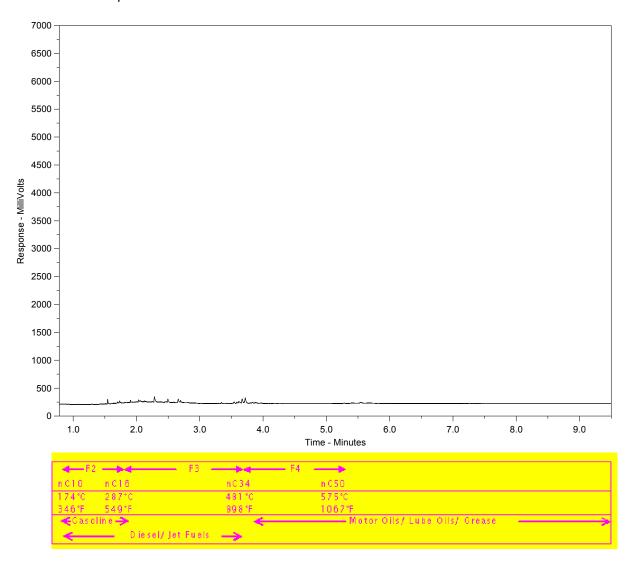
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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

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



ALS Sample ID: L2473824-1 Client Sample ID: ARV-2



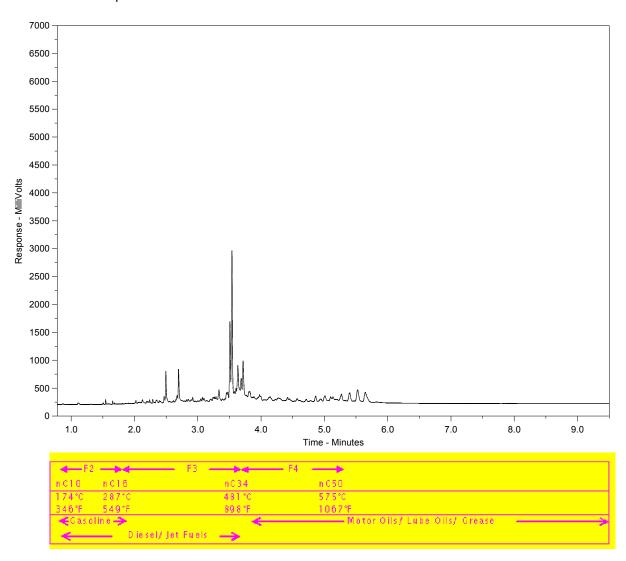
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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

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



ALS Sample ID: L2473824-2 Client Sample ID: ARV-4



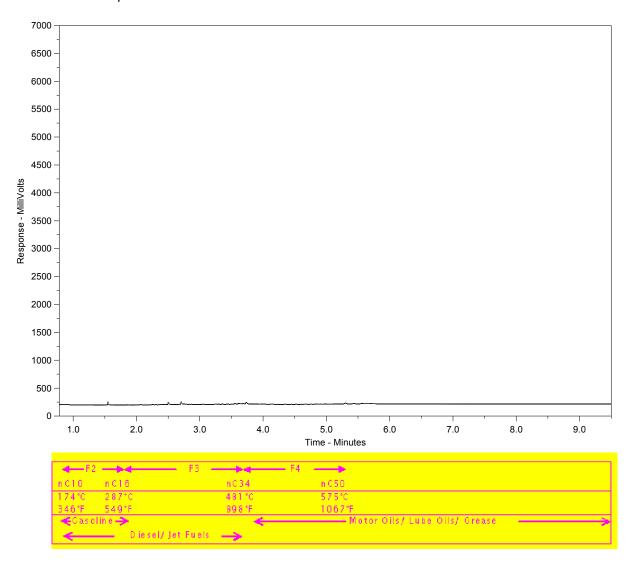
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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

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



ALS Sample ID: L2473824-3 Client Sample ID: ARV-5



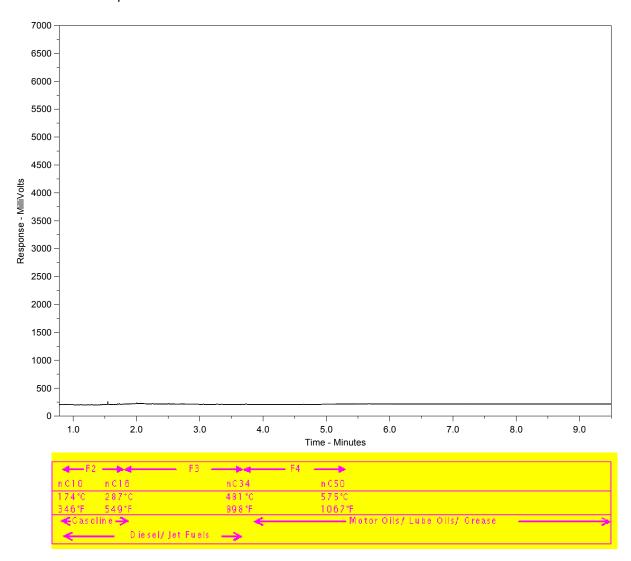
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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

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



ALS Sample ID: L2473824-4 Client Sample ID: ARV-6



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

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

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

# ALS Environmental

# Chain of Custody (COC) / Analytical Request Form

L2473824-COFC

COC Number: 17 - 747854

age / of

Canada Toll Free: 1 800 668 9878

							Out of Durant Java   Bolony Contest your All to gooding all CRO TATO (out)													
Report To	Contact and company name below will appear on the final report						Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)													
Company:	Hamlet OF ARVIAT	Select Report Format:   ] PDF				L	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply													
Contact:	Steve England	Quality Control (QC) Report with Report				es a	្ត្រី   4 day [P4-20%] 📗 🧯   1 Business day [E - 100%]													
Phone:	867-857-2841	Compare Results to Criteria on Report - provide details below if box checked				3 day [P3-25%] Sa							same Day, Weekend or Statutory holiday [E2 -200%							
<del></del> -	Company address below will appear on the final report	Select Distribution: EMAIL   MAIL FAX				(Burst)	2 day [P2-50%] (Laboratory opening fees may apply)]											L		
Street:		Email 1 or Fax Carvist Sao				F	Date and ]	ate and Time Required for all E&P TATs: dd-mmm-yy hh:mm												
City/Province:	ARVIAT, NU					For tests	that can no	t be perform	ed accord	ing to the	service l	eval salect	ed, you wi	ill be conta	acted.					
Postal Code:	XOC-OEO	Email 3						Analysis Request												
Invoice To S	Same as Report To YES NO	Invoice Distribution				] [		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below										<b>D</b>		
	Copy of Invoice with Report YES No	Select Invoice Distribution: EMAIL MAIL FAX				RS								-	_			<b>=</b>	ions	
Company:		Email 1 or Fax				IJIJ.	- 1	11/				1	]		e lob			O	r Ed	
Contact:		Email 2				] € [		ᅡ뀍	2				]	. [ઝુ	\$8 <del>-</del> 7	3		Ĭ	<u> </u>	
	Project Information	14-3" C	il and Gas Required Fields (client use) 🎇 🍣 🚬			ONTAINER		8	Ŋ			14	-	lõ	.ሐሌ	刻	1 1	O	<u>ç</u>	
ALS Account # / C	Quote #:	AFE/Cost Center:		PO#		151		l X	7		7	$ \mathcal{V} $	la d		-ሣග	H		ᅙ	Spe	
Job#: _		Major/Minor Code:		Routing Code:		၂ပ၂	. 1	18	J		Ú	1	ואֿען		6 K			S.	8	
PO/AFE:		Requisitioner:				ㅂ	À	1.7	Č	٧,	┨.	£ [*	1 🗶		100	7	1	и. Ш	g g	
LSD:		Location:					۷Y ,	$\sqrt{2}$	Run	ัช	Ji	4 1 97	ן א		*	١		J	Ž	
ALS Lab Work	ALS Lab Work Order # (lab use only): ALS Cont			ALS Contact: Sampler:			4		4	g	ď i	$\mathcal{E}_{\mathcal{I}}$	S F	E	Extra r	ឬ		ΑP	SUSPECTED HAZARD (see Special Instructions)	
ALS Sample #	Sample Identification and/or Coordinates		Date	Time		NUMBER	8	オス	دیم	7	ا   رَ	到是	<b>1</b> 77		又一	Ţ		AM	PEC	
(lab use only)	(This description will appear on the report)		(dd-mmm-yy)	(hh:mm)	Sample Type	<b>z</b>	$\alpha$	AN		<b>-</b>	<b>≔</b>   .	<b>4</b> 3			TIL	Û		Ś	Sus	
								Τ,		$\overline{\cdot}$	Π,	1			<u>,                                     </u>					
	ARV-2		12-07-36	8-58a	haker		7 7	7 7	7	, \	7	7 7	Z		7	٠ ا	† . †		1	
1.79	000-0		13-07-20	& UDa	مرجعا سردو	+ -			7	7	7   ;	7 / 2	1		7 ]	· ·			Ħ	
	ARV-4 ARV-5		15-1-00	Quit	10000	╆~~	4	7+7	$\overline{}$	7	Η,	7,7		-	7 7	+	+		H	
			13-07-20	7:1422	Waster	-	4. 5	7-17	-	*	7 2	7+7		$\vdash$	4 7	<b>└</b>			1	
	ARN-6		13-07-20	931 am	water	<u> </u>	7 -	7 7	7	3	-1 -	7 7			<u>ً د</u>	3	$\perp \perp$		$oxed{oxed}$	
		_ <u></u>				ļ					_						$\perp$			
		<u> </u>				<u> </u>											$\bot$		Ш	
10 1 No. 2 11																	$\perp$			
485 75.																				
																			1	
		<u> </u>																		
		-														I				
Drinking Water (DW) Samples' (client use)  Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)						SA						lab use	only)	No		٥٠.				
Are samples taken from a Regulated DW System?		etronic COC only)					_ 🗆			vations Yes						ן ן				
Are samples taken non a negulated DW System?			•			Ice Packs					Custody seal intact Yes					- No	Į	]		
Are samples for human consumption/ use?			a.				INITIAL COOLER TEMPERATE				JRES®C EINAL COOLEG					I SO TEL	MPERATURES °C			
			ŀ			9-2					FINAL COC			TEN TENE MONIONES 'C						
YES   NO SHIPMENT RELEASE (client use) INITIAL SHIPMENT RECEPTION (lab use only)					1 /	<del>-}-</del> -		<u> </u>	in in	NAL O	HIDME	IT PEA	EBTIO	N (lab c	ea cab	Λ				
Released by:						Time:	FINAL SHIPMENT RECEPTION (lab use only)    Dime: Received by: Date:   Time:													
ه) آ	Cause Date Date: Date: 14 July 1					OC.	)		•					. '						
								IIIIS FRONT												



Hamlet of Arviat Da

ATTN: PAULIE ISSUMATARJUAK/STEVE

ENGLAND

PO Box 150

Arviat NU XOC 0E0

Date Received: 31-JUL-20

Report Date: 13-AUG-20 13:27 (MT)

Version: FINAL

Client Phone: 867-857-2841

# Certificate of Analysis

Lab Work Order #: L2482395
Project P.O. #: NOT SUBMITTED

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

Hua Wo

Chemistry Laboratory Manager

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

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

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



Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2482395-1 ARV-2							
Sampled By: CLIENT on 29-JUL-20 @ 09:12							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
Toluene	<0.0010		0.0010	mg/L		06-AUG-20	R5177356
Ethyl benzene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
o-Xylene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
m+p-Xylenes	<0.00040		0.00040	mg/L		06-AUG-20	R5177356
F1 (C6-C10)	<0.10		0.10	mg/L		06-AUG-20	R5177356
Surrogate: 4-Bromofluorobenzene (SS)	88.6		70-130	%		06-AUG-20	R5177356
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	06-AUG-20	06-AUG-20	R5176059
F3 (C16-C34)	<0.25		0.25	mg/L	06-AUG-20	06-AUG-20	R5176059
F4 (C34-C50)	<0.25		0.25	mg/L	06-AUG-20	06-AUG-20	R5176059
Surrogate: 2-Bromobenzotrifluoride	96.0		60-140	%	06-AUG-20	06-AUG-20	R5176059
CCME Total Hydrocarbons			0.40			40 4110 00	
F1-BTEX	<0.10		0.10	mg/L		12-AUG-20	
F2-Naphth	<0.10		0.10	mg/L		12-AUG-20	
F3-PAH Total Hydrocorbons (C6 C50)	<0.25		0.25	mg/L		12-AUG-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		12-AUG-20	
Sum of Xylene Isomer Concentrations Xylenes (Total)	<0.00064		0.00064	mg/L		10-AUG-20	
Ayleries (Total)	<0.0004		0.00004	IIIg/L		10-A00-20	
Total and E. coli, 1:10 dilution by QT97							
Total Coliforms	6490	PEHR	10	MPN/100mL		31-JUL-20	R5173328
Escherichia Coli	60	PEHR	10	MPN/100mL		31-JUL-20	R5173328
CCME PAHs in mg/L							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Acenaphthene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Acenaphthylene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Anthracene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Acridine	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(a)anthracene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(k)fluoranthene Chrysene	<0.000010 <0.000020		0.000010 0.000020	mg/L mg/L	06-AUG-20 06-AUG-20	12-AUG-20 12-AUG-20	R5180378 R5180378
Dibenzo(a,h)anthracene	<0.000020		0.000020	mg/L	06-AUG-20 06-AUG-20	12-AUG-20 12-AUG-20	R5180378
Fluoranthene	<0.000030		0.0000030	mg/L	06-AUG-20	12-AUG-20 12-AUG-20	R5180378
Fluorene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Indeno(1,2,3-cd)pyrene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Naphthalene	<0.000050		0.000050	mg/L	06-AUG-20	12-AUG-20	R5180378
Phenanthrene	<0.000050		0.000050	mg/L	06-AUG-20	12-AUG-20	R5180378
Pyrene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Quinoline	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	06-AUG-20	12-AUG-20	R5180378
Surrogate: d8-Naphthalene	107.9		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d10-Phenanthrene	108.7		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d12-Chrysene	93.8		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d10-Acenaphthene	102.8		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d9-Acridine (SS)	103.0		50-150	%	06-AUG-20	12-AUG-20	R5180378
Nunavut WW Group 1							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2482395-1 ARV-2							
Sampled By: CLIENT on 29-JUL-20 @ 09:12							
Matrix: WATER							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	488		1.2	mg/L		04-AUG-20	
Alkalinity, Carbonate Carbonate (CO3)	10.00		0.00			04 4110 00	
Alkalinity, Hydroxide	<0.60		0.60	mg/L		04-AUG-20	
Hydroxide (OH)	<0.34		0.34	mg/L		04-AUG-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	400		1.0	mg/L		31-JUL-20	R5173759
Ammonia by colour Ammonia, Total (as N)	5.69		0.20	mg/L		05-AUG-20	R5174886
Biochemical Oxygen Demand (BOD)	0.00		0.20	1119/2		007.00 20	110114000
Biochemical Oxygen Demand	29.4		6.0	mg/L		31-JUL-20	R5175204
Carbonaceous BOD	40.5		0.0	m a/l		24 1111 00	DE475004
BOD Carbonaceous  Chloride in Water by IC	18.5		6.0	mg/L		31-JUL-20	R5175204
Chloride (CI)	477		10	mg/L		31-JUL-20	R5174777
Conductivity							
Conductivity	3020		1.0	umhos/cm		31-JUL-20	R5173759
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	60	PEHT	10	MPN/100mL		31-JUL-20	R5173332
Hardness Calculated			. •				
Hardness (as CaCO3)	971	HTC	0.20	mg/L		06-AUG-20	
Mercury Total	0.0000400		0.0000050	m a/l	04 4110 20	04 ALIC 20	DE474400
Mercury (Hg)-Total  Nitrate in Water by IC	0.0000180		0.0000050	mg/L	04-AUG-20	04-AUG-20	R5174196
Nitrate (as N)	<0.40	DLM	0.40	mg/L		31-JUL-20	R5174777
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.45		0.45	mg/L		06-AUG-20	
Nitrite in Water by IC Nitrite (as N)	<0.20	DLM	0.20	mg/L		31-JUL-20	R5174777
Oil & Grease - Gravimetric	0.20		0.20	9/ =		0.00220	
Oil and Grease	<5.0		5.0	mg/L		07-AUG-20	R5177198
Phenol (4AAP) Phenols (4AAP)	0.0044		0.0010	ma/l		05-AUG-20	DE175405
Phosphorus, Total	0.0041		0.0010	mg/L		05-A0G-20	R5175495
Phosphorus (P)-Total	0.689		0.0030	mg/L		06-AUG-20	R5176078
Sulfate in Water by IC							
Sulfate (SO4)	665		6.0	mg/L		31-JUL-20	R5174777
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	0.0145		0.0030	mg/L	05-AUG-20	05-AUG-20	R5175488
Arsenic (As)-Total	0.00531		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Cadmium (Cd)-Total	0.0000630		0.0000050	mg/L	05-AUG-20	05-AUG-20	R5175488
Calcium (Ca)-Total	276		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Chromium (Cr)-Total	0.00147		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Cobalt (Co)-Total Copper (Cu)-Total	0.00141 0.0149		0.00010 0.00050	mg/L mg/L	05-AUG-20 05-AUG-20	05-AUG-20 05-AUG-20	R5175488 R5175488
Iron (Fe)-Total	1.19		0.00050	mg/L	05-AUG-20 05-AUG-20	05-AUG-20 05-AUG-20	R5175488
Lead (Pb)-Total	0.00127		0.000050	mg/L	05-AUG-20	05-AUG-20	R5175488
Magnesium (Mg)-Total	68.6		0.0050	mg/L	05-AUG-20	05-AUG-20	R5175488
Manganese (Mn)-Total	0.972		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Nickel (Ni)-Total	0.00814		0.00050	mg/L	05-AUG-20	05-AUG-20	R5175488
Potassium (K)-Total	58.0		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Sodium (Na)-Total	307		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2482395-1 ARV-2							
Sampled By: CLIENT on 29-JUL-20 @ 09:12							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Zinc (Zn)-Total	0.0822		0.0030	mg/L	05-AUG-20	05-AUG-20	R5175488
Total Organic Carbon by Combustion							
Total Organic Carbon	36.6		0.50	mg/L		06-AUG-20	R5176327
Total Suspended Solids	00.7		0.0	/I		04 4110 00	DE475500
Total Suspended Solids	29.7		3.0	mg/L		04-AUG-20	R5175528
<b>pH</b> pH	8.05		0.10	pH units		31-JUL-20	R5173759
L2482395-2 ARV-4	0.00		0.10	priamo		0.00220	10170700
Sampled By: CLIENT on 29-JUL-20 @ 08:58							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
Toluene	<0.0010		0.0010	mg/L		06-AUG-20	R5177356
Ethyl benzene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
o-Xylene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
m+p-Xylenes	<0.00040		0.00040	mg/L		06-AUG-20	R5177356
F1 (C6-C10)	<0.10		0.10	mg/L		06-AUG-20	R5177356
Surrogate: 4-Bromofluorobenzene (SS)	87.4		70-130	%		06-AUG-20	R5177356
<b>CCME PHC F2-F4 in Water</b> F2 (C10-C16)	<0.10		0.10	mg/L	06-AUG-20	06-AUG-20	R5176059
F3 (C16-C34)	1.64		0.10	mg/L	06-AUG-20	06-AUG-20	R5176059
F4 (C34-C50)	0.51		0.25	mg/L	06-AUG-20	06-AUG-20	R5176059
Surrogate: 2-Bromobenzotrifluoride	90.9		60-140	%	06-AUG-20	06-AUG-20	R5176059
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		12-AUG-20	
F2-Naphth	<0.10		0.10	mg/L		12-AUG-20	
F3-PAH	1.64		0.25	mg/L		12-AUG-20	
Total Hydrocarbons (C6-C50)	2.14		0.38	mg/L		12-AUG-20	
Sum of Xylene Isomer Concentrations  Xylenes (Total)	<0.00064		0.00064	mg/L		10-AUG-20	
Ayionos (Total)	<0.0004		0.00004	IIIg/L		10-A00-20	
Total and E. coli, 1:10 dilution by QT97							
Total Coliforms	>24200	PEHR	10	MPN/100mL		31-JUL-20	R5173328
Escherichia Coli	7700	PEHR	10	MPN/100mL		31-JUL-20	R5173328
CCME PAHs in mg/L						40.41.5.5.	
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Acenaphthylene	<0.000020		0.000020	mg/L	06-AUG-20 06-AUG-20	12-AUG-20 12-AUG-20	R5180378 R5180378
Acenaphthylene Anthracene	<0.000020 <0.000010		0.000020 0.000010	mg/L mg/L	06-AUG-20 06-AUG-20	12-AUG-20 12-AUG-20	R5180378
Acridine	0.000033		0.000010	mg/L	06-AUG-20	12-AUG-20 12-AUG-20	R5180378
Benzo(a)anthracene	<0.000033		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(a)pyrene	<0.000050		0.0000050	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Chrysene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Dibenzo(a,h)anthracene	<0.000050		0.000050	mg/L	06-AUG-20	12-AUG-20	R5180378
Fluoranthene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Fluorene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2482395-2 ARV-4							
Sampled By: CLIENT on 29-JUL-20 @ 08:58							
Matrix: WATER							
CCME PAHs in mg/L							
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Naphthalene Phenanthrene	<0.000050 <0.000050		0.000050 0.000050	mg/L mg/L	06-AUG-20 06-AUG-20	12-AUG-20 12-AUG-20	R5180378 R5180378
Pyrene	<0.000030		0.000030	mg/L	06-AUG-20	12-AUG-20 12-AUG-20	R5180378
Quinoline	0.000041		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	06-AUG-20	12-AUG-20	R5180378
Surrogate: d8-Naphthalene	97.8		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d10-Phenanthrene	98.4		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d12-Chrysene Surrogate: d10-Acenaphthene	92.5 94.5		50-150 50-150	% %	06-AUG-20 06-AUG-20	12-AUG-20 12-AUG-20	R5180378 R5180378
Surrogate: d9-Acridine (SS)	89.3		50-150	%	06-AUG-20	12-AUG-20	R5180378
Nunavut WW Group 1			23.00	'-			
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	323		1.2	mg/L		04-AUG-20	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		04-AUG-20	
Alkalinity, Hydroxide	0.00		0.00	9/ =		0.7.00 20	
Hydroxide (OH)	<0.34		0.34	mg/L		04-AUG-20	
Alkalinity, Total (as CaCO3)	265		1.0	ma/l		21 11 11 20	DE172750
Alkalinity, Total (as CaCO3)  Ammonia by colour	265		1.0	mg/L		31-JUL-20	R5173759
Ammonia, Total (as N)	43.1		2.0	mg/L		05-AUG-20	R5174886
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	45		20	mg/L		31-JUL-20	R5175204
Carbonaceous BOD BOD Carbonaceous	31.1		6.0	mg/L		31-JUL-20	R5175204
Chloride in Water by IC	31.1		0.0	IIIg/L		31-30L-20	K5175204
Chloride (CI)	122		1.0	mg/L		31-JUL-20	R5174777
Conductivity	_						
Conductivity	945		1.0	umhos/cm		31-JUL-20	R5173759
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	14100	PEHT	10	MPN/100mL		31-JUL-20	R5173332
Hardness Calculated							
Hardness (as CaCO3)	67.2	HTC	0.20	mg/L		06-AUG-20	
Mercury Total	0.0000000		0.0000050	mall	04 4110 00	04 4110 00	DE474400
Mercury (Hg)-Total  Nitrate in Water by IC	0.0000080		0.0000050	mg/L	04-AUG-20	04-AUG-20	R5174196
Nitrate in Water by iC Nitrate (as N)	0.141		0.040	mg/L		31-JUL-20	R5174777
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.141		0.070	mg/L		06-AUG-20	
Nitrite in Water by IC Nitrite (as N)	<0.020	DLM	0.020	mg/L		31-JUL-20	R5174777
Oil & Grease - Gravimetric	\U.U2U	25.00	0.020	ilig/L		01 00L-20	1.0117111
Oil and Grease	<5.0		5.0	mg/L		07-AUG-20	R5177198
Phenol (4AAP)			0.00:-			05 4110 00	DE4== :==
Phenols (4AAP)	<0.0010		0.0010	mg/L		05-AUG-20	R5175495
Phosphorus, Total Phosphorus (P)-Total	10.6		0.15	mg/L		06-AUG-20	R5176078
Sulfate in Water by IC							
Sulfate (SO4)	7.26		0.60	mg/L		31-JUL-20	R5174777
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	0.0995		0.0030	mg/L	05-AUG-20	05-AUG-20	R5175488
Alaminani (Al)-Totai	0.0990		0.0030	IIIg/L	00-700-20	00-700-20	13173400

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2482395-2 ARV-4							
Sampled By: CLIENT on 29-JUL-20 @ 08:58							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Arsenic (As)-Total	0.00560		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Cadmium (Cd)-Total	0.0000481		0.0000050	mg/L	05-AUG-20	05-AUG-20	R5175488
Calcium (Ca)-Total	12.9		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Chromium (Cr)-Total	0.00105		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Cobalt (Co)-Total	0.00120		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Copper (Cu)-Total	0.0461		0.00050	mg/L	05-AUG-20	05-AUG-20	R5175488
Iron (Fe)-Total	3.25		0.010	mg/L	05-AUG-20	05-AUG-20	R5175488
Lead (Pb)-Total	0.00126		0.000050	mg/L	05-AUG-20	05-AUG-20	R5175488
Magnesium (Mg)-Total	8.48		0.0050	mg/L	05-AUG-20	05-AUG-20	R5175488
Manganese (Mn)-Total	0.215		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Nickel (Ni)-Total	0.00525		0.00050	mg/L	05-AUG-20	05-AUG-20	R5175488
Potassium (K)-Total	22.5		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Sodium (Na)-Total	82.8		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Zinc (Zn)-Total	0.0372		0.0030	mg/L	05-AUG-20	05-AUG-20	R5175488
Total Organic Carbon by Combustion Total Organic Carbon	48.8		0.50	mg/L		06-AUG-20	R5176327
Total Suspended Solids	.5.5		3.50				
Total Suspended Solids	33.5		3.0	mg/L		04-AUG-20	R5175528
pH							
pH	7.73		0.10	pH units		31-JUL-20	R5173759
L2482395-3 ARV-5(BOTTLE SAYS AR-V4)							
Sampled By: CLIENT on 29-JUL-20 @ 09:24							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
Toluene	<0.0010		0.0010	mg/L		06-AUG-20	R5177356
Ethyl benzene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
o-Xylene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
m+p-Xylenes	<0.00040		0.00040	mg/L		06-AUG-20	R5177356
F1 (C6-C10)	<0.10		0.10	mg/L		06-AUG-20	R5177356
Surrogate: 4-Bromofluorobenzene (SS)	87.2		70-130	%		06-AUG-20	R5177356
CCME PHC F2-F4 in Water F2 (C10-C16)	<0.10		0.10	ma/l	06-AUG-20	06-AUG-20	R5176059
F3 (C16-C16)	<0.10 <0.25		0.10	mg/L mg/L	06-AUG-20 06-AUG-20	06-AUG-20 06-AUG-20	R5176059 R5176059
F4 (C34-C50)	<0.25		0.25	mg/L	06-AUG-20 06-AUG-20	06-AUG-20 06-AUG-20	R5176059 R5176059
Surrogate: 2-Bromobenzotrifluoride	99.5		60-140	%	06-AUG-20	06-AUG-20 06-AUG-20	R5176059
CCME Total Hydrocarbons	05.5		00 140	/6	307.30 20	307.30 20	
F1-BTEX	<0.10		0.10	mg/L		12-AUG-20	
F2-Naphth	<0.10		0.10	mg/L		12-AUG-20	
F3-PAH	<0.25		0.25	mg/L		12-AUG-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		12-AUG-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		10-AUG-20	
Total and E. coli, 1:10 dilution by QT97							
Total Coliforms	5170	PEHR	10	MPN/100mL		31-JUL-20	R5173328
Escherichia Coli	<10	PEHR	10	MPN/100mL		31-JUL-20	R5173328
CCME PAHs in mg/L							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
   L2482395-3   ARV-5(BOTTLE SAYS AR-V4)							
Sampled By: CLIENT on 29-JUL-20 @ 09:24							
Matrix: WATER							
CCME PAHs in mg/L							
Acenaphthene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Acenaphthylene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Anthracene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Acridine	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(a)anthracene	<0.00010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	06-AUG-20	12-AUG-20	R5180378
Benzo(b&j)fluoranthene Benzo(g,h,i)perylene	<0.000010 <0.000020		0.000010 0.000020	mg/L mg/L	06-AUG-20 06-AUG-20	12-AUG-20 12-AUG-20	R5180378 R5180378
Benzo(k)fluoranthene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20 12-AUG-20	R5180378
Chrysene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Dibenzo(a,h)anthracene	<0.000050		0.0000050	mg/L	06-AUG-20	12-AUG-20	R5180378
Fluoranthene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Fluorene	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20	R5180378
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	06-AUG-20	12-AUG-20	R5180378
Naphthalene	<0.000050		0.000050	mg/L	06-AUG-20	12-AUG-20	R5180378
Phenanthrene	<0.000050 <0.000010		0.000050	mg/L	06-AUG-20 06-AUG-20	12-AUG-20	R5180378
Pyrene Quinoline	<0.000010		0.000010 0.000020	mg/L mg/L	06-AUG-20 06-AUG-20	12-AUG-20 12-AUG-20	R5180378 R5180378
B(a)P Total Potency Equivalent	<0.000020		0.000020	mg/L	06-AUG-20	12-AUG-20 12-AUG-20	R5180378
Surrogate: d8-Naphthalene	99.2		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d10-Phenanthrene	104.3		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d12-Chrysene	93.4		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d10-Acenaphthene	98.4		50-150	%	06-AUG-20	12-AUG-20	R5180378
Surrogate: d9-Acridine (SS)	88.7		50-150	%	06-AUG-20	12-AUG-20	R5180378
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	82.0		1.2	mg/L		04-AUG-20	
Alkalinity, Carbonate	02.0		·· <b>-</b>	9/_		01710020	
Carbonate (CO3)	<0.60		0.60	mg/L		04-AUG-20	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		04-AUG-20	
Alkalinity, Total (as CaCO3)	07.0		4.0	m ~ /!		24 11 11 00	DE470750
Alkalinity, Total (as CaCO3)	67.2		1.0	mg/L		31-JUL-20	R5173759
Ammonia by colour Ammonia, Total (as N)	0.25		0.20	mg/L		05-AUG-20	R5174886
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		31-JUL-20	R5175204
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		31-JUL-20	R5175204
Chloride in Water by IC Chloride (CI)	243		1.0	mg/L		31-JUL-20	R5174777
Conductivity	243		1.0	illy/L		31-JUL-20	131/4///
Conductivity	880		1.0	umhos/cm		31-JUL-20	R5173759
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	10	PEHT	10	MPN/100mL		31-JUL-20	R5173332
Hardness Calculated							
Hardness (as CaCO3)	136	HTC	0.20	mg/L		06-AUG-20	
Mercury Total Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	04-AUG-20	04-AUG-20	R5174196
Nitrate in Water by IC	-0.0000000		3.0000000	ilig/L	0-7 A00-20	0-7-7-00-20	110177180
Nitrate (as N)	<0.040	DLM	0.040	mg/L		31-JUL-20	R5174777
Nitrate+Nitrite							
	I	l				L	

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2482395-3 ARV-5(BOTTLE SAYS AR-V4)							
Sampled By: CLIENT on 29-JUL-20 @ 09:24							
Matrix: WATER							
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		06-AUG-20	
Nitrite in Water by IC				-			
Nitrite (as N)	<0.020	DLM	0.020	mg/L		31-JUL-20	R5174777
Oil & Grease - Gravimetric				,,		07 4110 00	
Oil and Grease	<5.0		5.0	mg/L		07-AUG-20	R5177198
Phenol (4AAP) Phenols (4AAP)	<0.0010		0.0010	mg/L		05-AUG-20	R5175495
Phosphorus, Total	0.00.0		0.00.0	9. =			
Phosphorus (P)-Total	0.0773		0.0030	mg/L		06-AUG-20	R5176078
Sulfate in Water by IC							
Sulfate (SO4)	5.71		0.60	mg/L		31-JUL-20	R5174777
Total Metals in Water by CRC ICPMS	0.0414		0.0030	ma/l	05-AUG-20	05-AUG-20	R5175488
Aluminum (AI)-Total Arsenic (As)-Total	0.0414		0.0030	mg/L mg/L	05-AUG-20 05-AUG-20	05-AUG-20 05-AUG-20	R5175488
Cadmium (Cd)-Total	<0.00076		0.000000	mg/L	05-AUG-20	05-AUG-20 05-AUG-20	R5175488
Calcium (Ca)-Total	22.8		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Chromium (Cr)-Total	0.00025		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Cobalt (Co)-Total	0.00027		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Copper (Cu)-Total	0.00056		0.00050	mg/L	05-AUG-20	05-AUG-20	R5175488
Iron (Fe)-Total	2.16		0.010	mg/L	05-AUG-20	05-AUG-20	R5175488
Lead (Pb)-Total Magnesium (Mg)-Total	0.00118 19.2		0.000050 0.0050	mg/L mg/L	05-AUG-20 05-AUG-20	05-AUG-20 05-AUG-20	R5175488 R5175488
Manganese (Mn)-Total	0.148		0.0030	mg/L	05-AUG-20 05-AUG-20	05-AUG-20 05-AUG-20	R5175488
Nickel (Ni)-Total	0.00112		0.00050	mg/L	05-AUG-20	05-AUG-20	R5175488
Potassium (K)-Total	7.53		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Sodium (Na)-Total	127		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Zinc (Zn)-Total	0.0150		0.0030	mg/L	05-AUG-20	05-AUG-20	R5175488
Total Organic Carbon by Combustion	10.0		0.50			00 4110 00	DE170007
Total Organic Carbon  Total Suspended Solids	12.9		0.50	mg/L		06-AUG-20	R5176327
Total Suspended Solids	8.9		3.0	mg/L		04-AUG-20	R5175528
pH				3			
pH	7.55		0.10	pH units		31-JUL-20	R5173759
L2482395-4 ARV-6							
Sampled By: CLIENT on 29-JUL-20 @ 09:37							
Matrix: WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS Benzene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
Toluene	<0.0010		0.00050	mg/L		06-AUG-20 06-AUG-20	R5177356
Ethyl benzene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
o-Xylene	<0.00050		0.00050	mg/L		06-AUG-20	R5177356
m+p-Xylenes	<0.00040		0.00040	mg/L		06-AUG-20	R5177356
F1 (C6-C10)	<0.10		0.10	mg/L		06-AUG-20	R5177356
Surrogate: 4-Bromofluorobenzene (SS)	86.5		70-130	%		06-AUG-20	R5177356
CCME PHC F2-F4 in Water F2 (C10-C16)	<0.10		0.10	ma/l	06-AUG-20	06-AUG-20	R5176059
F3 (C16-C34)	<0.10 <0.25		0.10	mg/L mg/L	06-AUG-20 06-AUG-20	06-AUG-20 06-AUG-20	R5176059
F4 (C34-C50)	<0.25		0.25	mg/L	06-AUG-20	06-AUG-20	R5176059
Surrogate: 2-Bromobenzotrifluoride	94.8		60-140	%	06-AUG-20	06-AUG-20	R5176059
CCME Total Hydrocarbons							

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2482395-4 ARV-6							
Sampled By: CLIENT on 29-JUL-20 @ 09:37							
Matrix: WATER							
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		12-AUG-20	
F2-Naphth	<0.10		0.10	mg/L		12-AUG-20	
F3-PAH	<0.25		0.25	mg/L		12-AUG-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		12-AUG-20	
Sum of Xylene Isomer Concentrations Xylenes (Total)	<0.00064		0.00064	mg/L		10-AUG-20	
Total and E. coli, 1:10 dilution by QT97 Total Coliforms	410	PEHR	10	MPN/100mL		31-JUL-20	R5173328
Escherichia Coli	<10	PEHR	10	MPN/100mL		31-JUL-20	R5173328
CCME PAHs in mg/L							
1-Methyl Naphthalene	0.000064		0.000020	mg/L	11-AUG-20	12-AUG-20	R5182224
2-Methyl Naphthalene	0.000034		0.000020	mg/L	11-AUG-20	12-AUG-20	R5182224
Acenaphthene	<0.000020		0.000020	mg/L	11-AUG-20	12-AUG-20	R5182224
Acenaphthylene	<0.000020		0.000020	mg/L	11-AUG-20	12-AUG-20	R5182224
Anthracene	<0.000010		0.000010	mg/L	11-AUG-20	12-AUG-20	R5182224
Acridine Benzo(a)anthracene	<0.000020 <0.000010		0.000020 0.000010	mg/L mg/L	11-AUG-20 11-AUG-20	12-AUG-20 12-AUG-20	R5182224 R5182224
Benzo(a)pyrene	<0.000010		0.000010	-	11-AUG-20 11-AUG-20	12-AUG-20 12-AUG-20	R5162224 R5182224
Benzo(b&j)fluoranthene	<0.000010		0.0000000	mg/L	11-AUG-20	12-AUG-20	R5182224
Benzo(g,h,i)perylene	<0.000010		0.000020	mg/L	11-AUG-20	12-AUG-20	R5182224
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	11-AUG-20	12-AUG-20	R5182224
Chrysene	<0.000020		0.000020	mg/L	11-AUG-20	12-AUG-20	R5182224
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	11-AUG-20	12-AUG-20	R5182224
Fluoranthene	<0.000020		0.000020	mg/L	11-AUG-20	12-AUG-20	R5182224
Fluorene	<0.000020		0.000020	mg/L	11-AUG-20	12-AUG-20	R5182224
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	11-AUG-20	12-AUG-20	R5182224
Naphthalene	<0.000050		0.000050	mg/L	11-AUG-20	12-AUG-20	R5182224
Phenanthrene Pyrene	<0.000050 <0.000010		0.000050	mg/L mg/L	11-AUG-20 11-AUG-20	12-AUG-20 12-AUG-20	R5182224 R5182224
Quinoline	<0.000010		0.000010	mg/L	11-AUG-20 11-AUG-20	12-AUG-20 12-AUG-20	R5162224 R5182224
B(a)P Total Potency Equivalent	<0.000020		0.000020	mg/L	11-AUG-20	12-AUG-20	R5182224
Surrogate: d8-Naphthalene	101.3		50-150	%	11-AUG-20	12-AUG-20	R5182224
Surrogate: d10-Phenanthrene	100.2		50-150	%	11-AUG-20	12-AUG-20	R5182224
Surrogate: d12-Chrysene	98.6		50-150	%	11-AUG-20	12-AUG-20	R5182224
Surrogate: d10-Acenaphthene	100.4		50-150	%	11-AUG-20	12-AUG-20	R5182224
Surrogate: d9-Acridine (SS)	86.7		50-150	%	11-AUG-20	12-AUG-20	R5182224
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	70.9		1.2	mg/L		04-AUG-20	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		04-AUG-20	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		04-AUG-20	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	58.1		1.0	mg/L		31-JUL-20	R5173759
Ammonia by colour Ammonia, Total (as N)	0.062		0.010	mg/L		05-AUG-20	R5174886
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	<2.0		2.0	mg/L		31-JUL-20	R5175204
Carbonaceous BOD BOD Carbonaceous	<2.0		2.0	mg/L		31-JUL-20	R5175204

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2482395-4 ARV-6							
Sampled By: CLIENT on 29-JUL-20 @ 09:37							
Matrix: WATER							
Chloride in Water by IC							
Chloride (Cl)	132		0.50	mg/L		31-JUL-20	R5174777
Conductivity Conductivity	548		1.0	umhos/cm		31-JUL-20	R5173759
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms Hardness Calculated	<10	PEHT	10	MPN/100mL		31-JUL-20	R5173332
Hardness (as CaCO3)	133	HTC	0.20	mg/L		06-AUG-20	
Mercury Total Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	12-AUG-20	12-AUG-20	R5185681
Nitrate in Water by IC Nitrate (as N)	0.026		0.020	mg/L		31-JUL-20	R5174777
Nitrate+Nitrite							1.0117111
Nitrate and Nitrite as N Nitrite in Water by IC	<0.070		0.070	mg/L		06-AUG-20	
Nitrite (as N)	<0.010		0.010	mg/L		31-JUL-20	R5174777
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		07-AUG-20	R5177198
Phenol (4AAP) Phenols (4AAP)	0.0011		0.0010	mg/L		05-AUG-20	R5175495
Phosphorus, Total							
Phosphorus (P)-Total  Sulfate in Water by IC	0.0441		0.0030	mg/L		06-AUG-20	R5176078
Sulfate (SO4)	1.38		0.30	mg/L		31-JUL-20	R5174777
Total Metals in Water by CRC ICPMS	0.0004		0.0000	ma/l	05 ALIC 20	05-AUG-20	DE475400
Aluminum (AI)-Total Arsenic (As)-Total	0.0384 0.00051		0.0030 0.00010	mg/L mg/L	05-AUG-20 05-AUG-20	05-AUG-20 05-AUG-20	R5175488 R5175488
Cadmium (Cd)-Total	0.00031		0.000010	mg/L	05-AUG-20 05-AUG-20	05-AUG-20 05-AUG-20	R5175488
Calcium (Ca)-Total	38.5		0.050	mg/L	05-AUG-20	05-AUG-20 05-AUG-20	R5175488
Chromium (Cr)-Total	0.00034		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Cobalt (Co)-Total	0.00094		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Copper (Cu)-Total	<0.00050		0.00050	mg/L	05-AUG-20	05-AUG-20	R5175488
Iron (Fe)-Total	9.18		0.010	mg/L	05-AUG-20	05-AUG-20	R5175488
Lead (Pb)-Total	0.000291		0.000050	mg/L	05-AUG-20	05-AUG-20	R5175488
Magnesium (Mg)-Total	9.04		0.0050	mg/L	05-AUG-20	05-AUG-20	R5175488
Manganese (Mn)-Total	1.16		0.00010	mg/L	05-AUG-20	05-AUG-20	R5175488
Nickel (Ni)-Total	0.00085		0.00050	mg/L	05-AUG-20	05-AUG-20	R5175488
Potassium (K)-Total	4.26		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Sodium (Na)-Total	49.3		0.050	mg/L	05-AUG-20	05-AUG-20	R5175488
Zinc (Zn)-Total	0.0322		0.0030	mg/L	05-AUG-20	05-AUG-20	R5175488
Total Organic Carbon by Combustion Total Organic Carbon	6.54		0.50	mg/L		06-AUG-20	R5176327
Total Suspended Solids							
Total Suspended Solids pH	17.7		3.0	mg/L		04-AUG-20	R5175528
pH	7.01		0.10	pH units		31-JUL-20	R5173759

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

PAGE 11 of 13 Version: FINAL

#### Reference Information

Qualifiers for Individual Samples Listed:

Lab Sample ID	Client Sample ID	Qualifier	Description
L2482395-4	ARV-6	WSMT	Mercury - Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

#### Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DUPM	MPN duplicate results were outside default ALS Data Quality Objective, but within 95% confidence interval for MPN reference method. Sample results are reliable.
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.
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- Water Alkalinity, Bicarbonate CALCULATION WP

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

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

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

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

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

BOD-CBOD-WP Water Carbonaceous BOD APHA 5210 B

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

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

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

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

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

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

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

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

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

EC-WP Water Conductivity APHA 2510B

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

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

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

# Reference Information

PAGE 12 of 13 Version: FINAL

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

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

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

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

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

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

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

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

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

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

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

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

HARDNESS-CALC-WP Water Hardness Calculated APHA 2340B

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

L2482395 CONTD....

PAGE 13 of 13 Version: FINAL

#### Reference Information

**Test Method References:** 

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

PH-WP Water pH APHA 4500H

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

PHENOLS-4AAP-WT Water Phenol (4AAP) EPA 906

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 aguesous matrices is determined gravimetrically after drying the residue at 103 105 C.

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

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

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

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

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

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

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

#### **Chain of Custody Numbers:**

#### **GLOSSARY OF REPORT TERMS**

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

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

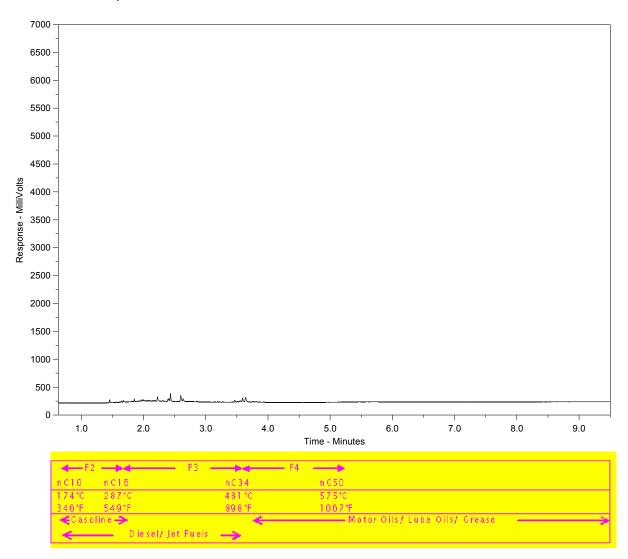
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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



ALS Sample ID: L2482395-1 Client Sample ID: ARV-2



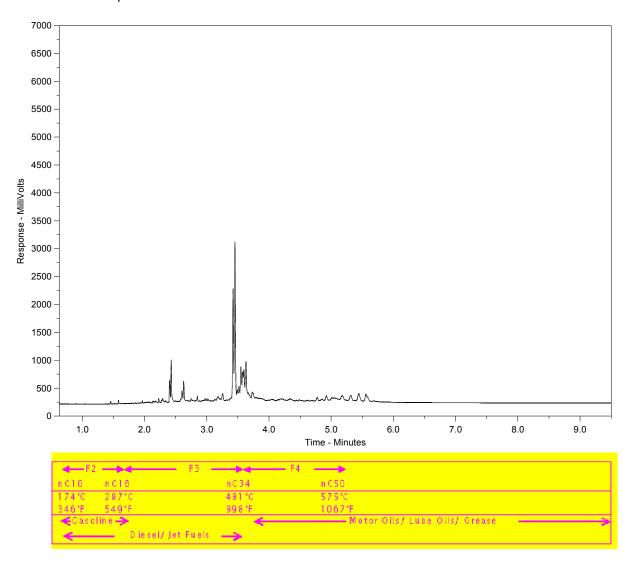
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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

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



ALS Sample ID: L2482395-2 Client Sample ID: ARV-4



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

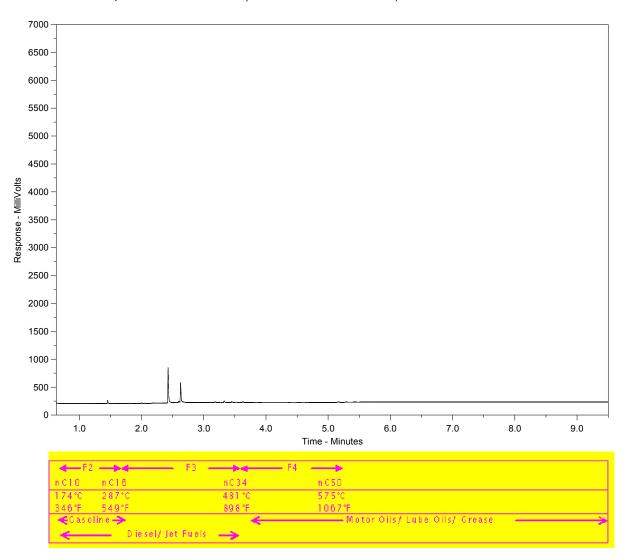
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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



ALS Sample ID: L2482395-3

Client Sample ID: ARV-5(BOTTLE SAYS AR-V4)



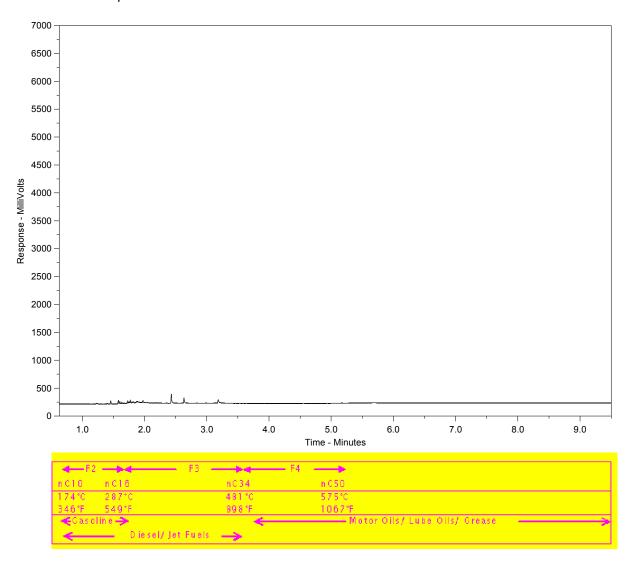
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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

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



ALS Sample ID: L2482395-4 Client Sample ID: ARV-6



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

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

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

# ALS) Environmenta

# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2482395-COFC

; coc Number: 17 - 747780

age (

	www.alsglobal.com		tueil), Cal	W						Ma and	10年50	4					
Report To	Contact and company name belo	w will appear on the final report		Report Fon.			7	Select	ervice Lev	8 124	4						y apply)
Сотрапу:	Hamot of A	Mat	Select Report For	mat: PDF	EXCEL   SEC	(DIGITAL)	arions a Acre	Regula			TAT if receiv				urcharges ar	oply	
Contact:		ngland _	Quality Control (C	(C) Report with Repo	rt Late YES a	A Most storie III	3	4 day [P	1-20%) <sub>-177</sub>	esm e	, j 1 B	usiness	day [E -	100%]			
Phone:	861-857-2		ri (Compare Resul	lts to Criteria on Report - p	rovide details below, if b	or inerhed denot	6	3 day IP	-25%]	h stov	San	e Day, W	leekend	or Statu	tory holic	lay [E2 -:	200%
	Company address below will appear o		Select Distribution	n: EMAIL	MAIL 34 765	msare correctly	5温3	2.day (P	2 50%] 2.1	ger toe	u ditat	peratory	opening	fees ma	y apply) ]		
Street:	BOX 150			actoria			ilw.	Date and T	ms Required	for all E&P	TATS	1		dd-m	nmm-yy_hì	h:mm	
City/Province:	ANIOS. NU	mut ment	Email 2.	" TRADE	ganin	u.ce	7 7 7	American in the	be performed	r- 4- 4 - 4**	a vante diffra e la c			oreacted.	ـــــــــــــــــــــــــــــــــــــ	5 E	
Postal Code:	XOC-OED	THE DESIGNATION	(Ja Email 3 Sant) ni	dens a mintenance	a real policer a	de attenedaco I	211:9	nestric	HAY Anne	ie cur to	. 235.21A	nalysis, F	Request	P17-12-0	os bas, as.		
Invoice To	Same as Report To	YES NO		Invoice Dis			ا ۱٫۱		Indicate	Filtered (F), I	reserved (P)	or Filtered	and Preser	red (F/P) b	elow		
	Copy of Invoice with Report	YES NO	Select Invoice Dis	stribution: 🎝 🎜 🗺	AILT MAC SH	or ceremogram	翌日	es c the	ALL DATE OF	ba isaan	26 92 75	44	AF CARS	( 7 <b>997</b> )	Same of the	ं	9
Company:		क्ष्मार्थिक media los ३.४	Email Tor Fax Q	alat to aven ittou ti	( ) 13 o to: seidn	ing Proto Amesia		AT HO JOSEPH	Smu's e	, E . E . E .	4	~		or hann	ကြည်းပါတယ် ကေလာက် သော က	T	0
Contact:		in the state of th	Email 2	alls a di selama Nas	dia di a	V daesas valat	ı É I	os esta	ne the sun	U G TO	NO.		4 10	State F	1 - 1	k k	I
	Project Information	n	the state of the s	Il and Gas Required			E			ों	Shirt	7.7	Ø " .	5	Gige	· 102	· 2
ALS Account #	/ Quote #:	the same		Per which ALS may					DANKY S		中国		7 300	<b>5</b> -	F 310	1 41	Ō
Job #:	is tegal symple protocols. Ac-1.	<del></del>		rcharge on the list	Routing(Cóté:IA.	es are collected	10"	no l	15 O 10	C TO CO	*H=	12	or V	1	T d	131	်
PO / AFE:		7 2	Requisitioner:	iscritted on the chai	en ione biographen si	· <del>Constantial Autorit</del>	6	ر الح		Z al	$\mathcal{U}\mathcal{V}$	344	87	1 2 2 2 E	ur een	CARRIA Laborat	Ŭ
LSD:	الَّهِ الْمُرَادِينَ مِنْ الْمُونَّدُ فِلْ الْمُرَادِينَ الْمُسِودُ فِي اللَّهِ الْمُرَادِينَ فِي اللَّهِ اللّ مُنْ مُنْ اللَّهِ اللّ	on various and seek construction	Location:	naso el insili de la	No. of the Parish Pro-	e - denieur en	ď.	JA.	Jak .		4	K. L	$\langle \mathbb{Z}   \mathbb{Z} \rangle$	Ten cal	و. آدور	# 7 A	. 교
ALS Lab Wo	rk Order# (lab use only);	Selono ad	CIALS Connector	nt may have for any	Semplerish yas	isses ALS from	NUMBE	2			t, the sage	览表	أبمرات	) iskan	ne es ave	96 (85)	. <u>₽</u>
44.0.0	> trail and ment of himse blain	MENTER CHARLES TO A SECURITY OF SECURITY O	as knemenys roma a a said a a dama	to trondend on	anibit Timesser	on aging on the				2 7	2 6	2 100	S 5	i orie	ins since		<b> </b>
ALS Sample # (lab use only)	to all each sort a Sample Iden	ption will appear on the report)		(dd-mmm-yy)	(hh:mm)	Sample Type	Z	<b>94</b> 1	W.	2 4	$\Omega N$		$ D  \circ$				Ŝ
1,081	(Title debest)					Caronen voi in a	J 64	का का की	in Euglite	LE, , , , 3, 2	ns Ja	8 JES	393 343	3	रेट्सम्प १ हस		
-	001-0		thin the specified p	00000	9/1200	- rhierton	- P. T.		7	وسقطوه	**************************************	11	1/1	*	_	+ + + + + + + + + + + + + + + + + + + +	
***	1 14150-5		t up and delivery s		02-07		<del> </del>			Y	3.95 V			+	+	++	·
	HKV-4	- 4.3 UA 13	e 4 thathan hum the s	011910		<u> </u>	<del> </del>		//		ي را	1.1	111	, ,	<del></del>	+ - +	<u> </u>
	1 ARV-5			07-19-20			<u> </u>		10 1	10	0	V		<u>_</u>		$\rightarrow$	
	ARV-6		<u></u>	07-2920	937an	<u>.                                     </u>		1/1	11	1	1/1	14	110			$\bot$	
		· -						1 1.									
		<del></del>					Ī	,	T - T								
		<del></del>	· .						1 1					1		1	
37		<del></del>			<del></del>	·	<del> </del>	<del> </del>	1 1	-   -		+		+		1.1	
	<del> </del>	<del></del>				· · · · · · · · · · · · · · · · · · ·	┿	<del>  </del> -	<del>-  </del>	-+		++	-+-	-	<del></del>	+	
1 1 1 1 1 1	<del>                                     </del>	·····			-		<u> </u>	<del>                                     </del>	╌╁╌┈┿╸			+			<del></del>		
	<u> </u>				ļ		ļ	<b> </b>	<del></del>			1-1		4		<b></b>	
1 1 2	<u> </u>														حلب		
Drieki	ng Water (DW) Samples¹ (client use	Special Instruction		add on report by clich	king on the drop-do	wn list below				****	CONDIT						
li .	en from a Regulated DW System?	<u>~</u>	(ele	etronic COC only)	<del></del>		Froze				SIF Obse		Yes			«No	
	AEZ   NO				•			acks 🤼 🕒 ng initiate	]lceCul d ∏	es 📙	Custody	seal Intac	t Ye	s [	,J	No	i
1	human consumption/ use?	<b>.</b>					COOII		IAL COOLER	TEMPERAY	TIBES &C	· .	<del></del>	FINAL	COOLER TE	MOERATIU	RES 90
1			•				10		IN COULER	, Eller Cross	UNES O			- INCAL C	ZOCEN TE	Test Electricity	<del></del>
<u> </u>	YES   NO	liant		BUTTAL OLIMANTS	T DECENTION O	h unn ambil	172	4		<del></del>	EINAL PI	1IDME41	DECED	TION ('-	b use onl	<u></u>	
Released by:	SHIPMENT RELEASE (cl.		Received by:	INITIAL SHIPMEN	TRECEPTION (IA	n nse ouià)	Time	R	ceived by	<del>,</del>	FINAL SI	Date:	KEUEP	IION (IS	n ase out	7.1	Time:
(OL	ura Jul	429/20 95	Received by:						l	NF)		1 1	in 3	3) 1	400		11.45 M
REFER TO BACK	PAGE FOR ALS LOCATIONS AND SAM	APLING INFORMATION		WHI	TE - LABORATORY	COPY YELLO	W - CLI	ENT COP		-			- O -	4-			JUNE 20



Hamlet of Arviat

ATTN: LAURA TASSIUK

PO Box 150

Arviat NU X0C 0H0

Date Received: 21-SEP-20

Report Date: 06-0CT-20 10:16 (MT)

Version: FINAL REV. 2

Client Phone: 867-857-2841

# Certificate of Analysis

Lab Work Order #: L2505947
Project P.O. #: NOT SUBMITTED

Job Reference: ARVIAT - WASTE WATER (AUG 2020)

C of C Numbers: Legal Site Desc:

Comments: ADDITIONAL 23-SEP-20 12:26

ADDITIONAL 21-SEP-20 14:40

6-OCT-2020 AMENEDED REPORT - Report re-issued with BOD & CBOD QC Qualifier

Comments

Hua Wo

Chemistry Laboratory Manager

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

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

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



L2505947 CONTD....
PAGE 2 of 12
Version: FINAL REV.

						Batch
L2505947-1 ARV-2A						
Sampled By: CLIENT on 16-SEP-20 @ 12:00						
Matrix: Waste Water						
BTEX						
BTX plus F1 by GCMS						
Benzene	<0.00050	0.00050	mg/L		25-SEP-20	R5242014
Toluene	<0.0010	0.0010	mg/L		25-SEP-20	R5242014
Ethyl benzene	<0.00050	0.00050	mg/L		25-SEP-20	R5242014
o-Xylene	< 0.00050	0.00050	mg/L		25-SEP-20	R5242014
m+p-Xylenes	<0.00040	0.00040	mg/L		25-SEP-20	R5242014
F1 (C6-C10)	<0.10	0.10	mg/L		25-SEP-20	R5242014
Surrogate: 4-Bromofluorobenzene (SS)	74.9	70-130	%		25-SEP-20	R5242014
CCME Total Hydrocarbons						
F1-BTEX	<0.10	0.10	mg/L		30-SEP-20	
F2-Naphth	<0.10	0.10	mg/L		30-SEP-20	
F3-PAH	<0.25	0.25	mg/L		30-SEP-20	
Total Hydrocarbons (C6-C50)	<0.38	0.38	mg/L		30-SEP-20	
Sum of Xylene Isomer Concentrations	40.00004	0.00001	ma ar II		20 055 00	
Xylenes (Total)	<0.00064	0.00064	mg/L		30-SEP-20	
F2-F4 (O.Reg.153/04)						
F2 (C10-C16)	<100	100	ug/L	25-SEP-20	28-SEP-20	R5241403
F3 (C16-C34)	<250	250	ug/L	25-SEP-20	28-SEP-20	R5241403
F4 (C34-C50)	<250	250	ug/L	25-SEP-20	28-SEP-20	R5241403
Chrom. to baseline at nC50	YES			25-SEP-20	28-SEP-20	R5241403
Surrogate: 2-Bromobenzotrifluoride	87.1	60-140	%	25-SEP-20	28-SEP-20	R5241403
CCME PAHs in mg/L				05 055 00		
1-Methyl Naphthalene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
2-Methyl Naphthalene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthene Acenaphthylene	<0.000020	0.000020	mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Anthracene	<0.000020 <0.000010	0.000020 0.000010	mg/L mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828
Acridine	<0.000010	0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)anthracene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)pyrene	<0.000010	0.0000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(b&j)fluoranthene	<0.000010	0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(g,h,i)perylene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(k)fluoranthene	<0.000010	0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Chrysene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Dibenzo(a,h)anthracene	<0.000050	0.0000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Fluoranthene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Fluorene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Indeno(1,2,3-cd)pyrene	<0.000010	0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Naphthalene	<0.000050	0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Phenanthrene	<0.000050	0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Pyrene	<0.000010	0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Quinoline	0.000021	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
B(a)P Total Potency Equivalent	<0.000030	0.000030	mg/L	25-SEP-20	30-SEP-20	R5242828
Surrogate: d8-Naphthalene	102.3	50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d10-Phenanthrene	102.1	50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d12-Chrysene	86.9	50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d10-Acenaphthene Surrogate: d9-Acridine (SS)	90.6	50-150 50-150	% %	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828
Nunavut WW Group 1	98.2	50-150	7/0	20-3EP-20	3U-3EP-2U	R5242828
Alkalinity, Bicarbonate						
Bicarbonate (HCO3)	493	1.2	mg/L		25-SEP-20	

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

L2505947 CONTD....
PAGE 3 of 12
Version: FINAL REV.

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505947-1 ARV-2A							
Sampled By: CLIENT on 16-SEP-20 @ 12:00							
Matrix: Waste Water							
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		25-SEP-20	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		25-SEP-20	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	404		1.0	mg/L		24-SEP-20	R5235789
Ammonia by colour Ammonia, Total (as N)	5.60		0.20	mg/L		25-SEP-20	R5241312
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	6.0		2.0	mg/L		24-SEP-20	R5242487
Carbonaceous BOD BOD Carbonaceous	5.5		2.0	mg/L		24-SEP-20	R5242487
Chloride in Water by IC Chloride (CI)	408		10	mg/L		24-SEP-20	R5238110
Conductivity Conductivity	3030		1.0	umhos/cm		24-SEP-20	R5235789
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	10	PEHR		MPN/100mL		23-SEP-20	R5234537
Hardness Calculated Hardness (as CaCO3)	1090	нтс	1.2	mg/L		01-OCT-20	
Mercury Total Mercury (Hg)-Total	0.0000080		0.0000050	mg/L	28-SEP-20	28-SEP-20	R5241670
Nitrate in Water by IC Nitrate (as N)	<0.40	DLM	0.40	mg/L		24-SEP-20	R5238110
Nitrate+Nitrite Nitrate and Nitrite as N	<0.45		0.45	mg/L		28-SEP-20	
Nitrite in Water by IC Nitrite (as N)	<0.20	DLM	0.20	mg/L		24-SEP-20	R5238110
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		29-SEP-20	R5242756
Phenol (4AAP) Phenols (4AAP)	0.0018		0.0010	mg/L		24-SEP-20	R5236019
Phosphorus, Total Phosphorus (P)-Total	0.329		0.0030	mg/L		28-SEP-20	R5241526
Sulfate in Water by IC Sulfate (SO4)	699		6.0	mg/L		24-SEP-20	R5238110
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	0.0116		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Arsenic (As)-Total	0.00355		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Cadmium (Cd)-Total	0.0000171		0.0000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Calcium (Ca)-Total	307		0.50	mg/L	25-SEP-20	25-SEP-20	R5240019
Chromium (Cr)-Total	0.00070		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cobalt (Co)-Total	0.00081		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Copper (Cu)-Total	0.00954		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Iron (Fe)-Total	0.726		0.010	mg/L	25-SEP-20	25-SEP-20	R5240019
Lead (Pb)-Total	0.000661		0.000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Magnesium (Mg)-Total	77.5		0.0050	mg/L	25-SEP-20	25-SEP-20	R5240019
Manganese (Mn)-Total	0.699		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Nickel (Ni)-Total	0.00677		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Potassium (K)-Total	57.0		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Sodium (Na)-Total	297		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Zinc (Zn)-Total	0.0137		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Total Organic Carbon by Combustion							

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

L2505947 CONTD....
PAGE 4 of 12
Version: FINAL REV.

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505947-1 ARV-2A							
Sampled By: CLIENT on 16-SEP-20 @ 12:00							
Matrix: Waste Water							
<b>Total Organic Carbon by Combustion</b> Total Organic Carbon	28.8		0.50	mg/L		24-SEP-20	R5237222
<b>Total Suspended Solids</b> Total Suspended Solids	12.3		3.0	mg/L		24-SEP-20	R5236461
<b>pH</b> pH	8.05		0.10	pH units		24-SEP-20	R5235789
L2505947-2 ARV-4	0.00			<b>,</b>			
Sampled By: CLIENT on 16-SEP-20 @ 12:00							
Matrix: Waste Water							
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	173		1.2	mg/L		25-SEP-20	
Alkalinity, Carbonate						25-SEP-20	
Carbonate (CO3)  Alkalinity, Hydroxide	4.80		0.60	mg/L		25-SEP-20	
Hydroxide (OH)  Alkalinity, Total (as CaCO3)	<0.34		0.34	mg/L		25-SEP-20	
Alkalinity, Total (as CaCO3)	150		1.0	mg/L		24-SEP-20	R5235789
Ammonia by colour Ammonia, Total (as N)	9.06		0.20	mg/L		25-SEP-20	R5241312
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	> 140	BODQ	20	mg/L		24-SEP-20	R5245147
Carbonaceous BOD BOD Carbonaceous	23.1	BODQ	6.0	mg/L		24-SEP-20	R5245147
Chloride in Water by IC Chloride (CI)	131		0.50	mg/L		24-SEP-20	R5238110
Conductivity Conductivity	724		1.0	umhos/cm		24-SEP-20	R5235789
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	2760	PEHR		MPN/100mL		23-SEP-20	R5234537
Hardness Calculated Hardness (as CaCO3)	90.4	HTC	0.20			28-SEP-20	K3234337
Mercury Total		1110		mg/L			
Mercury (Hg)-Total  Nitrate in Water by IC	0.0000070		0.0000050	mg/L	28-SEP-20	28-SEP-20	R5241670
Nitrate (as N)	0.378		0.020	mg/L		24-SEP-20	R5238110
Nitrate+Nitrite Nitrate and Nitrite as N	0.637		0.070	mg/L		28-SEP-20	
Nitrite in Water by IC Nitrite (as N)	0.259		0.010	mg/L		24-SEP-20	R5238110
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		29-SEP-20	R5242756
Phenol (4AAP) Phenols (4AAP)	0.0415	DLM	0.0050	mg/L		24-SEP-20	R5236019
Phosphorus, Total Phosphorus (P)-Total	5.42		0.030	mg/L		28-SEP-20	R5241526
Sulfate in Water by IC Sulfate (SO4)	12.2		0.30	mg/L		24-SEP-20	R5238110
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.145		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Arsenic (As)-Total Cadmium (Cd)-Total	0.00676 0.0000569		0.00010 0.0000050	mg/L mg/L	25-SEP-20 25-SEP-20	25-SEP-20 25-SEP-20	R5240019 R5240019

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

L2505947 CONTD....
PAGE 5 of 12
Version: FINAL REV.

Sample Details/Parameters	Result	Qualifier* D.L.	Units	Extracted	Analyzed	Batch
L2505947-2 ARV-4						
Sampled By: CLIENT on 16-SEP-20 @ 12:00						
Matrix: Waste Water						
Total Metals in Water by CRC ICPMS						
Calcium (Ca)-Total	15.6	0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Chromium (Cr)-Total	0.00143	0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cobalt (Co)-Total	0.00132	0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Copper (Cu)-Total	0.0235	0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Iron (Fe)-Total	2.12	0.010	mg/L	25-SEP-20	25-SEP-20	R5240019
Lead (Pb)-Total	0.00111	0.000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Magnesium (Mg)-Total	12.5	0.0050	mg/L	25-SEP-20	25-SEP-20	R5240019
Manganese (Mn)-Total	0.206	0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Nickel (Ni)-Total	0.00561	0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Potassium (K)-Total	25.8	0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Sodium (Na)-Total Zinc (Zn)-Total	103	0.050	mg/L	25-SEP-20 25-SEP-20	25-SEP-20 25-SEP-20	R5240019
Total Organic Carbon by Combustion	0.0280	0.0030	mg/L	20-3EF-20	20-3EF-20	R5240019
Total Organic Carbon by Combustion  Total Organic Carbon	6.83	0.50	mg/L		24-SEP-20	R5237222
Total Suspended Solids	0.00	0.50	9, _		5 20	. 10201222
Total Suspended Solids	177	3.0	mg/L		24-SEP-20	R5236461
pH			_			
pH	8.43	0.10	pH units		24-SEP-20	R5235789
L2505947-3 ARV-5						
Sampled By: CLIENT on 16-SEP-20 @ 12:00						
Matrix: Waste Water						
BTEX						
BTX plus F1 by GCMS						
Benzene	<0.00050	0.00050	mg/L		25-SEP-20	R5242014
Toluene Ethyl benzene	<0.0010	0.0010	mg/L		25-SEP-20	R5242014
o-Xylene	<0.00050 <0.00050	0.00050 0.00050	mg/L mg/L		25-SEP-20 25-SEP-20	R5242014 R5242014
m+p-Xylenes	<0.00030	0.00030	mg/L		25-SEP-20	R5242014
F1 (C6-C10)	<0.10	0.10	mg/L		25-SEP-20	R5242014
Surrogate: 4-Bromofluorobenzene (SS)	75.1	70-130	%		25-SEP-20	R5242014
CCME Total Hydrocarbons						
F1-BTEX	<0.10	0.10	mg/L		30-SEP-20	
F2-Naphth	<0.10	0.10	mg/L		30-SEP-20	
F3-PAH	<0.25	0.25	mg/L		30-SEP-20	
Total Hydrocarbons (C6-C50)	<0.38	0.38	mg/L		30-SEP-20	
Sum of Xylene Isomer Concentrations					00.055.55	
Xylenes (Total)	<0.00064	0.00064	mg/L		30-SEP-20	
F2-F4 (O.Reg.153/04)						
F2 (C10-C16)	<100	100	ug/L	25-SEP-20	28-SEP-20	R5241403
F3 (C16-C34)	<250	250	ug/L	25-SEP-20	28-SEP-20	R5241403
F4 (C34-C50)	<250	250	ug/L	25-SEP-20	28-SEP-20	R5241403
Chrom. to baseline at nC50	YES			25-SEP-20	28-SEP-20	R5241403
Surrogate: 2-Bromobenzotrifluoride	88.5	60-140	%	25-SEP-20	28-SEP-20	R5241403
CCME PAHs in mg/L						
1-Methyl Naphthalene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
2-Methyl Naphthalene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthylana	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthylene Anthracene	<0.000020	0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Anthracene Acridine	<0.000010 <0.000020	0.000010 0.000020	mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Tonano	~0.000020	0.000020	mg/L	20-0LF-20	30-3LF-20	110242020

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

L2505947 CONTD....
PAGE 6 of 12
Version: FINAL REV.

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505947-3 ARV-5							
Sampled By: CLIENT on 16-SEP-20 @ 12:00							
Matrix: Waste Water							
CCME PAHs in mg/L							
Benzo(a)anthracene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)pyrene	<0.000050		0.0000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(k)fluoranthene Chrysene	<0.000010 <0.000020		0.000010	mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Dibenzo(a,h)anthracene	<0.000020		0.000020	mg/L mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828
Fluoranthene	<0.000020		0.0000030	mg/L	25-SEP-20	30-SEP-20	R5242828
Fluorene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Naphthalene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Phenanthrene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Pyrene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Quinoline	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
B(a)P Total Potency Equivalent Surrogate: d8-Naphthalene	<0.000030		0.000030	mg/L	25-SEP-20 25-SEP-20	30-SEP-20	R5242828 R5242828
Surrogate: 08-Naprithalene Surrogate: d10-Phenanthrene	95.3 96.6		50-150 50-150	% %	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Surrogate: d12-Chrysene	85.2		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d10-Acenaphthene	88.4		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d9-Acridine (SS)	86.9		50-150	%	25-SEP-20	30-SEP-20	R5242828
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	59.7		1.2	mg/L		25-SEP-20	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		25-SEP-20	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		25-SEP-20	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	48.9		1.0	mg/L		24-SEP-20	R5235789
Ammonia by colour	0.040		0.040			0E 0ED 00	D5044040
Ammonia, Total (as N)  Biochemical Oxygen Demand (BOD)	0.018		0.010	mg/L		25-SEP-20	R5241312
Biochemical Oxygen Demand	<2.0	BODQ	2.0	mg/L		24-SEP-20	R5245147
Carbonaceous BOD							
BOD Carbonaceous	3.7	BODQ	2.0	mg/L		24-SEP-20	R5245147
Chloride in Water by IC Chloride (Cl)	379		2.5	mc/l		24-SEP-20	R5238110
Conductivity	319		2.5	mg/L		2 <del>4</del> -3EF-20	N3230110
Conductivity	1350		1.0	umhos/cm		24-SEP-20	R5235789
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	<10	PEHR	10	MPN/100mL		23-SEP-20	R5234537
Hardness Calculated Hardness (as CaCO3)	207	нтс	0.20	mg/L		28-SEP-20	
Mercury Total Mercury (Hg)-Total	0.0000050		0.0000050	mg/L	28-SEP-20	28-SEP-20	R5241670
Nitrate in Water by IC Nitrate (as N)	<0.10	DLM	0.10	mg/L		24-SEP-20	R5238110
Nitrate+Nitrite Nitrate and Nitrite as N	<0.11		0.11	mg/L		28-SEP-20	
Nitrite in Water by IC	30.11		0.11	1119/ -		20 021 -20	
Nitrite (as N)	<0.050	DLM	0.050	mg/L		24-SEP-20	R5238110
Oil & Grease - Gravimetric							

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

L2505947 CONTD....
PAGE 7 of 12
Version: FINAL REV.

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505947-3 ARV-5							
Sampled By: CLIENT on 16-SEP-20 @ 12:00							
Matrix: Waste Water							
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		29-SEP-20	R5242756
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		24-SEP-20	R5236019
Phosphorus, Total						00.055.00	D=0.44=00
Phosphorus (P)-Total	0.0477		0.0030	mg/L		28-SEP-20	R5241526
Sulfate in Water by IC Sulfate (SO4)	6.5		1.5	mg/L		24-SEP-20	R5238110
Total Metals in Water by CRC ICPMS	0.0		1.0	9/ =			110200110
Aluminum (AI)-Total	0.156		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Arsenic (As)-Total	0.00058		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cadmium (Cd)-Total	0.0000081		0.0000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Calcium (Ca)-Total	29.1		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Chromium (Cr)-Total	0.00067		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cobalt (Co)-Total Copper (Cu)-Total	0.00030 0.00087		0.00010 0.00050	mg/L mg/L	25-SEP-20 25-SEP-20	25-SEP-20 25-SEP-20	R5240019 R5240019
Iron (Fe)-Total	3.11		0.00050	mg/L	25-SEP-20 25-SEP-20	25-SEP-20 25-SEP-20	R5240019 R5240019
Lead (Pb)-Total	0.000238		0.000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Magnesium (Mg)-Total	32.6		0.0050	mg/L	25-SEP-20	25-SEP-20	R5240019
Manganese (Mn)-Total	0.112		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Nickel (Ni)-Total	0.00080		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Potassium (K)-Total	8.79		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Sodium (Na)-Total	191		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Zinc (Zn)-Total	0.0082		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Total Organic Carbon by Combustion Total Organic Carbon	7.13		0.50	mg/L		24-SEP-20	R5237222
Total Suspended Solids	7.10		0.00	9/ _		2.02.20	110207222
Total Suspended Solids	50.3		3.0	mg/L		24-SEP-20	R5236461
pH							
pH	7.65		0.10	pH units		24-SEP-20	R5235789
L2505947-4 ARV-6							
Sampled By: CLIENT on 16-SEP-20 @ 12:00							
Matrix: Waste Water							
BTEX							
BTX plus F1 by GCMS Benzene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
Toluene	<0.0010		0.00030	mg/L		25-SEP-20	R5242014
Ethyl benzene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
o-Xylene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
m+p-Xylenes	<0.00040		0.00040	mg/L		25-SEP-20	R5242014
F1 (C6-C10)	<0.10		0.10	mg/L		25-SEP-20	R5242014
Surrogate: 4-Bromofluorobenzene (SS)	73.3		70-130	%		25-SEP-20	R5242014
CCME Total Hydrocarbons F1-BTEX	<0.10		0.10	mg/L		30-SEP-20	
F2-Naphth	<0.10		0.10	mg/L		30-SEP-20	
F3-PAH	<0.25		0.25	mg/L		30-SEP-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		30-SEP-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		30-SEP-20	
<b>F2-F4 (O.Reg.153/04)</b> F2 (C10-C16)	<100		100	ug/L	25-SEP-20	28-SEP-20	R5241403
(0.00.0)	100		100		20 011 -20	20 011 -20	110241400

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

L2505947 CONTD....
PAGE 8 of 12
Version: FINAL REV.

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505947-4 ARV-6							
Sampled By: CLIENT on 16-SEP-20 @ 12:00							
Matrix: Waste Water							
<b>F2-F4 (O.Reg.153/04)</b> F3 (C16-C34)	<250		250	ug/L	25-SEP-20	28-SEP-20	R5241403
F4 (C34-C50)	<250		250	ug/L	25-SEP-20	28-SEP-20	R5241403
Chrom. to baseline at nC50	YES			-5-5-	25-SEP-20	28-SEP-20	R5241403
Surrogate: 2-Bromobenzotrifluoride	90.3		60-140	%	25-SEP-20	28-SEP-20	R5241403
CCME PAHs in mg/L							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthylene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Anthracene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Acridine	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)anthracene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(k)fluoranthene Chrysene	<0.000010 <0.000020		0.000010 0.000020	mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Dibenzo(a,h)anthracene	<0.000020		0.000020	mg/L mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Fluoranthene	<0.0000030		0.0000030	mg/L	25-SEP-20 25-SEP-20	30-SEP-20	R5242828
Fluorene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Indeno(1,2,3-cd)pyrene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Naphthalene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Phenanthrene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Pyrene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Quinoline	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	25-SEP-20	30-SEP-20	R5242828
Surrogate: d8-Naphthalene	100.2		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d10-Phenanthrene	97.9		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d12-Chrysene	89.6		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d10-Acenaphthene	88.5		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d9-Acridine (SS)	89.5		50-150	%	25-SEP-20	30-SEP-20	R5242828
Nunavut WW Group 1							
Alkalinity, Bicarbonate	70.0		4.0	ma!!		0E 0ED 00	
Bicarbonate (HCO3)	73.8		1.2	mg/L		25-SEP-20	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		25-SEP-20	
Alkalinity, Hydroxide	-0.00		0.00	1119/L		20 021 -20	
Hydroxide (OH)	<0.34		0.34	mg/L		25-SEP-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	60.5		1.0	mg/L		24-SEP-20	R5235789
Ammonia by colour							
Ammonia, Total (as N)	0.103		0.010	mg/L		25-SEP-20	R5241312
Biochemical Oxygen Demand (BOD)		_					
Biochemical Oxygen Demand	<2.0	BODQ	2.0	mg/L		24-SEP-20	R5245147
Carbonaceous BOD	0.7	DODO.		w D		04.055.00	DE0454:5
BOD Carbonaceous	2.7	BODQ	2.0	mg/L		24-SEP-20	R5245147
Chloride in Water by IC Chloride (CI)	316		1.0	ma/l		24-SEP-20	D5239110
Conductivity	310		1.0	mg/L		24-3EF-2U	R5238110
Conductivity Conductivity	1140		1.0	umhos/cm		24-SEP-20	R5235789
Fecal coliforms, 1:10 dilution by QT97							13233733
Fecal Coliforms	<10	PEHR	10	MPN/100mL		23-SEP-20	R5234537

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

L2505947 CONTD....
PAGE 9 of 12
Version: FINAL REV.

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505947-4 ARV-6							
Sampled By: CLIENT on 16-SEP-20 @ 12:00							
Matrix: Waste Water							
Hardness Calculated							
Hardness (as CaCO3)	449	HTC	0.20	mg/L		28-SEP-20	
Mercury Total Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	28-SEP-20	28-SEP-20	R5241670
Nitrate in Water by IC Nitrate (as N)	<0.040	DLM	0.040	mg/L		24-SEP-20	R5238110
Nitrate+Nitrite Nitrate and Nitrite as N	<0.070		0.070	mg/L		28-SEP-20	
Nitrite in Water by IC		DLM				24-SEP-20	DE220110
Nitrite (as N)  Oil & Grease - Gravimetric	<0.020	DLIN	0.020	mg/L			R5238110
Oil and Grease Phenol (4AAP)	<5.0		5.0	mg/L		29-SEP-20	R5242756
Phenols (4AAP)	<0.0010		0.0010	mg/L		24-SEP-20	R5236019
Phosphorus, Total Phosphorus (P)-Total	0.0584		0.0030	mg/L		28-SEP-20	R5241526
Sulfate in Water by IC Sulfate (SO4)	<0.60	DLM	0.60	mg/L		24-SEP-20	R5238110
Total Metals in Water by CRC ICPMS Aluminum (AI)-Total	0.0604		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Arsenic (As)-Total	0.00057		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cadmium (Cd)-Total	0.0000188		0.0000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Calcium (Ca)-Total	162		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Chromium (Cr)-Total	0.00063		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cobalt (Co)-Total	0.00482		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Copper (Cu)-Total	0.00103		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Iron (Fe)-Total	11.2		0.010	mg/L	25-SEP-20	25-SEP-20	R5240019
Lead (Pb)-Total	0.000178		0.000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Magnesium (Mg)-Total	10.8		0.0050	mg/L	25-SEP-20	25-SEP-20	R5240019
Manganese (Mn)-Total	1.66		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Nickel (Ni)-Total	0.00185		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Potassium (K)-Total	9.84		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Sodium (Na)-Total	17.5		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Zinc (Zn)-Total	0.0125		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Total Organic Carbon by Combustion Total Organic Carbon	6.75		0.50	mg/L		24-SEP-20	R5237222
Total Suspended Solids Total Suspended Solids	37.5		3.0	mg/L		24-SEP-20	R5236461
pH							
pH	7.28		0.10	pH units		24-SEP-20	R5235789

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

L2505947 CONTD....

Reference Information

PAGE 10 of 12 Version: FINAL REV

Sample Parameter Qualifier Key:

Qualifier	Description					
BODQ	BOD Qualification: Lab Control Sample outside standard 85-115% objective (see QC report). Sample(s) cannot be rerun due to hold time expiry.					
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).					
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).					
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.					
PEHR	R Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.					
RRQC	Refer to report remarks for information regarding this QC result.					

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

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

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

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

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

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

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

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

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

BOD-CBOD-WP Water Carbonaceous BOD APHA 5210 B

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

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

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

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

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

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

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

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

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

EC-WP Water Conductivity APHA 2510B

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

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

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

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH

# Reference Information

L2505947 CONTD.... PAGE 11 of 12 Version: FINAL REV

**Test Method References:** 

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

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

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

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

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

HARDNESS-CALC-WP Water Hardness Calculated **APHA 2340B** 

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

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

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

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

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

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

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

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

nitroprusside and measured colourmetrically.

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

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

NO3-IC-N-WP Nitrate in Water by IC 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 Phosphorus, Total APHA 4500 P PHOSPHORUS-L Water

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

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

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

**APHA 4500H** Water

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

### Reference Information

L2505947 CONTD.... PAGE 12 of 12 Version: FINAL REV

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

SO4-IC-N-WP

**ALS Test Code** Matrix Method Reference\*\* **Test Description** PHENOLS-4AAP-WT **EPA 9066** Water Phenol (4AAP)

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.

EPA 300.1 (mod)

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

Sulfate in Water by IC

SOLIDS-TOTSUS-WP Water Total Suspended Solids APHA 2540 D (modified) Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105 C. XYLENES-SUM-CALC-Water Sum of Xylene Isomer Concentrations CALCULATED RESULT

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

Water

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

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

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

#### **Chain of Custody Numbers:**

#### **GLOSSARY OF REPORT TERMS**

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

mg/kg - milligrams per kilogram based on dry weight of sample mg/kg wwt - milligrams per kilogram based on wet weight of sample mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

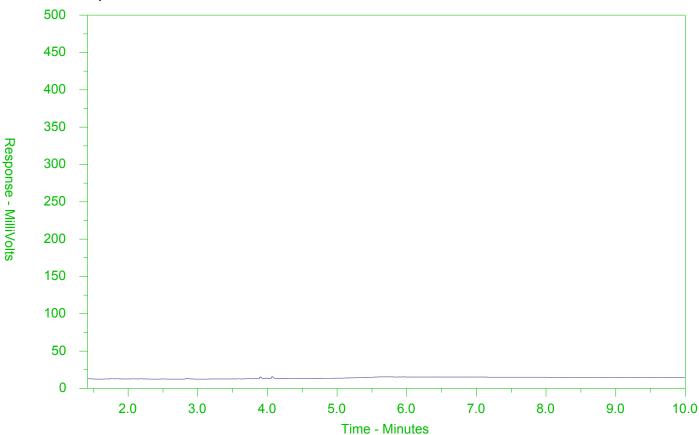
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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



ALS Sample ID: L2505947-1 Client Sample ID: ARV-2A



<b>←</b> -F2-	→←	—F3 <b>→</b> ←—F4—	<b>→</b>	
nC10	nC16	nC34	nC50	
174°C	287°C	481°C	575°C	
346°F	549°F	898°F	1067°F	
Gasolin	ie →	← Mot	tor Oils/Lube Oils/Grease———	-
•	-Diesel/Jet	t Fuels→		

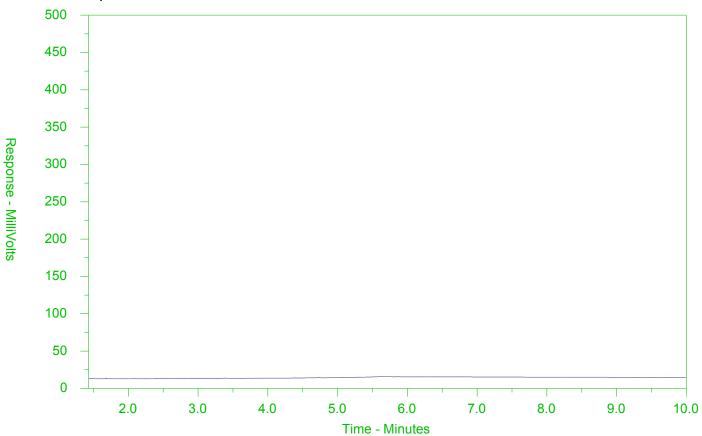
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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

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



ALS Sample ID: L2505947-3 Client Sample ID: ARV-5



<b>←</b> -F2-	→ ←	—F3——◆4—F4-	<b>→</b>	
nC10	nC16	nC34	nC50	
174°C	287°C	481°C	575°C	
346°F	549°F	898°F	1067°F	
Gasolin	e <b>→</b>	<b>←</b> M	otor Oils/Lube Oils/Grease—	-
<b>←</b>	-Diesel/Jet	Fuels→		

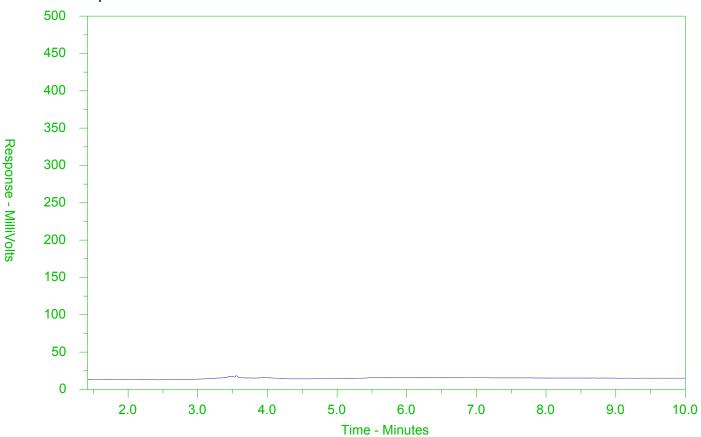
The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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

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



ALS Sample ID: L2505947-4 Client Sample ID: ARV-6



<b>←</b> -F2-	→←	—F3 <b>→</b> ←—F4—	<b>→</b>	
nC10	nC16	nC34	nC50	
174°C	287°C	481°C	575°C	
346°F	549°F	898°F	1067°F	
Gasolin	ie →	← Mot	tor Oils/Lube Oils/Grease———	-
•	-Diesel/Jet	t Fuels→		

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

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

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

# ALS Environmental

# Chain of Custody (COC) / Analytical Request Form

L2505947-COFC

icoc Number: 15 - L2 50 5947

Page 1 of

Canada Toll Free: 1 800 668 9878

www.alsglobal.com																						
Report To	Contact and company	name below will ap	pear on the final rep	ort	Report Format / Discripution				Select Service Level Below - Please confirm aff ESP 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:	Laura Tassiuk				Quality Control (QC) Report with Report 📋 YES 🗌 NO					4	day (I	P4]			չ	1	1 Business day [E1]					
Phone:	867-857-2841				Compare Results to Criteria on Report - provide details below if box checked				हें 3 day [P3]								Same Day, Weekend or				or .	_
	Company address below wi	l appear on the fin:	al report		Select Distribution: 🕑 EMAIL 🔲 MAIL 🔲 FAX					Same Day, Weekend or Statutory holiday [E0]												
Street: PO Box 150				Email 1 or Fax	waterderk@arviat	.ca		Date and Time Required for all E&P TATs: dd-mn.m-yy nh.orn							)r/f)							
City/Province: Arviat, NU					Email 2	cfaulkner@gov.nu	.ca	_	For tes	is that c	an not b	e perfori	wed acco	ording to	the se	vice le	vel selec	sted, yo	u will t	æ conte	cled.	
Postal Code:	XOC 0H0				Email 3	scollins@gov.nu,c	a								Analy	sis R	eques	t				
Invoice To	Same as Report To	✓ YES	□ NO			Invoice Dis	tribution			India	cate Fil	tered (F)	Preser	ved (P)	or Filte	red an	d Prese	erved (	F/P) b	elow		
	Copy of Invoice with Rep	ort 🗵 YES	□ NO		Select Invoice I	Distribution: 🔽 🗗	IAIL 🗌 MAIL 🗀	FAX					L									
Company:					Email 1 or Fax															$\neg$	7	
Contact:					Email 2								ŀ	•	1					. •	:	ρά
	Project Inf	ormation	•		Oi	and Gas Require	Fields (client i	ise)		١.					l		. 1	۱.		. 1		iner
ALS Account #	/ Quote #: W	10578			AFE/Cost Center:		PO#											. [	:.	.		onta
Job #:					Major/Minor Code:		Routing Code:								l			.		. 1		ن ي
PO / AFE:					Requisitioner:	-								ي ا			. 1			۱. ا		9.0
LSD:					Location:								'	ğ. (ğ.			ı.		-	.		Number of Containers
ALS Lab Work Order # (lab use only)				ALS Contact: Sampler:							itals	rcuny	Nutrients/Phenols		sase (x2)	(5X)	( <u>%</u>	ا ن	:   		Ź	
ALS Sample #	Samp	le identificatio	n and/or Coord	inates	•	Date	Time	Sample Type	۵	Routine	CBOD	Total Metals	Fotal Mercui	rient	Bacteria	Oil & Grease	втех-ғ1	Ţ.	PAH (x2)	. [		
(lab use only)		description will	appear on the re	eport)	.,	(dd-mmm-yy)	(hh:mm)	odnipie Type	дов 	S.	ë	Į į	ġ	N.	Bac	ō	<u>E</u>	F2-F4	ξ	,		
	ARV-2a					Aug/DO		Effluent	R	R	R	R	R	R	R	R	R	R;	: R			17
	ARV-4					AVADO		Effluent	R	R	R	R	R	R	R	R			:			10
	ARV-5					Aug/20)		Effluent	R	R	R	R	R	R	R	R	R	R	R	$\cdot$		17
	ARV-6					Analow		Effluent	R	R	R	R	R	R	R	R	R	R	R	. ]		17
_						1/10																
							· <del>-</del>											1				
				•											-			$\neg$				:
							-										一	$\neg$	$\dashv$			
						· · · · · · · · · · · · · · · · · · ·	<u> </u>	· <del></del>			_						$\dashv$		$\neg$			
			<u></u>												H	_		-	$\dashv$	$\dashv$		
		<u></u>														$\dashv$	$\dashv$	$\dashv$				
			<del>-</del>												H	$\dashv$		_	$\dashv$	$\longrightarrow$	-	
			F11		15 0					نـــــــا		CAME	LE CO	MUNIT	ION :	10 00	CEN	ED /	20.40	20.00		
Drinking	Water (DW) Samples <sup>1</sup> (c	lient use)	Special Instruc	tions / Sp		dd on report by clic tronic COC only)	King on the drop-	lown list below	Froze	n.			LE C	DIADLI			vation		Yes	Se om	No No	
Are samples take	en from a Regulated DW Sy	stem?			•		<u>·</u>			acks	П	_	ubes	П						_	No	- H
□ Y	es 🗓 no								l	na Initi	_	П		_		,	seal intact Yes 🔲 No					
Are samples for human drinking water use? NUNAVUT-WW-GRP1-		WP. BTEX. F1-8	4. PAH							R TEMPERATURES *C				FINAL COOLER TEMPERAT			TURES °C ·····					
☐ YES ☑ NO			•				13.	60	_			•	$\neg \uparrow$									
<del></del>	SHIPMENT RELE	ASE (client use	<del>)</del>		·	INITIAL SHIPMEN	T RECEPTION (	lab use only)		<del></del>	<u> </u>	-	FIN	VAL S	HIPM	ENT F	RECE	PTIO	N (lah	use (	only)	
Released by:	D	ate:	-	Time:	Received by:	gn	Date: 21	9/20	Time	1	Rece	ived b				Ī	Date:		,,,			Time:
BEEFE TO BACK	BAGE FOR ALS LOCATION	C'AND PAMOLO	IC INCODING	<u> </u>	<u> </u>	•	$\sim$ 1	1 W	2													



Hamlet of Arviat

ATTN: LAURA TASSIUK

PO Box 150

Arviat NU XOC 0E0

Date Received: 21-SEP-20

Report Date: 01-0CT-20 12:40 (MT)

Version: FINAL

Client Phone: 867-857-2841

# Certificate of Analysis

Lab Work Order #: L2505949
Project P.O. #: NOT SUBMITTED

Job Reference: ARVIAT - WASTE WATER (SEPT 2020)

C of C Numbers: Legal Site Desc:

Comments: ADDITIONAL 23-SEP-20 12:18

Hua Wo

Chemistry Laboratory Manager

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

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

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



L2505949 CONTD.... PAGE 2 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505949-1 ARV-2A							
Sampled By: CLIENT on 17-SEP-20 @ 09:09							
Matrix: EFFLUENT BTEX							
BTX plus F1 by GCMS Benzene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
Toluene	<0.0010		0.0010	mg/L		25-SEP-20	R5242014
Ethyl benzene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
o-Xylene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
m+p-Xylenes	<0.00040		0.00040	mg/L		25-SEP-20	R5242014
F1 (C6-C10)	<0.10		0.10	mg/L		25-SEP-20	R5242014
Surrogate: 4-Bromofluorobenzene (SS)	72.9		70-130	%		25-SEP-20	R5242014
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		30-SEP-20	
F2-Naphth	<0.10		0.10	mg/L		30-SEP-20	
F3-PAH	<0.25		0.25	mg/L		30-SEP-20	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		30-SEP-20	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		30-SEP-20	
F2-F4 (O.Reg.153/04)							
F2 (C10-C16)	<100		100	ug/L	25-SEP-20	28-SEP-20	R5241403
F3 (C16-C34)	<250		250	ug/L	25-SEP-20	28-SEP-20	R5241403
F4 (C34-C50)	<250		250	ug/L	25-SEP-20	28-SEP-20	R5241403
Chrom. to baseline at nC50	YES				25-SEP-20	28-SEP-20	R5241403
Surrogate: 2-Bromobenzotrifluoride	89.4		60-140	%	25-SEP-20	28-SEP-20	R5241403
CCME PAHs in mg/L 1-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthylene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Anthracene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Acridine	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)anthracene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Chrysene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Fluoranthene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Fluorene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Naphthalene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Phenanthrene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Pyrene	<0.000010	DLQ	0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Quinoline  R(a)P Total Potonov Equivalent	<0.000040	DLQ	0.000040	mg/L	25-SEP-20 25-SEP-20	30-SEP-20	R5242828
B(a)P Total Potency Equivalent Surrogate: d8-Naphthalene	<0.000030 74.4		0.000030	mg/L %	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Surrogate: 08-Naprithalerie Surrogate: d10-Phenanthrene	100.7		50-150 50-150	% %	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Surrogate: d12-Chrysene	89.4		50-150	%	25-SEP-20 25-SEP-20	30-SEP-20	R5242828
Surrogate: d12-Cityserie Surrogate: d10-Acenaphthene	89.1		50-150	%	25-SEP-20 25-SEP-20	30-SEP-20	R5242828
Surrogate: d9-Acridine (SS)	95.3		50-150	%	25-SEP-20	30-SEP-20	R5242828
Nunavut WW Group 1	33.3		00 100	70	20 02. 20	30 021 20	1.02-72020
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	483		1.2	mg/L		25-SEP-20	

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

L2505949 CONTD.... PAGE 3 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505949-1 ARV-2A							
Sampled By: CLIENT on 17-SEP-20 @ 09:09							
Matrix: EFFLUENT							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		25-SEP-20	
Alkalinity, Hydroxide			0.00				
Hydroxide (OH)	<0.34		0.34	mg/L		25-SEP-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	396		1.0	mg/L		24-SEP-20	R5235789
Ammonia by colour	5.40		0.00			05 050 00	D5044040
Ammonia, Total (as N)	5.40		0.20	mg/L		25-SEP-20	R5241312
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	6.1		2.0	mg/L		24-SEP-20	R5242487
Carbonaceous BOD	0.1		2.0	1119/2		24 021 20	113242407
BOD Carbonaceous	7.7		2.0	mg/L		24-SEP-20	R5242487
Chloride in Water by IC							
Chloride (CI)	415		10	mg/L		24-SEP-20	R5238110
Conductivity	2000		4.0			04.055.00	DE005700
Conductivity	3030		1.0	umhos/cm		24-SEP-20	R5235789
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms	30	PEHR	10	MPN/100mL		23-SEP-20	R5234537
Hardness Calculated							. 1020-1007
Hardness (as CaCO3)	1120	HTC	0.20	mg/L		28-SEP-20	
Mercury Total							
Mercury (Hg)-Total	0.0000080		0.0000050	mg/L	28-SEP-20	28-SEP-20	R5241670
Nitrate in Water by IC		DIM		, ,		04.055.00	D=000440
Nitrate (as N)	<0.40	DLM	0.40	mg/L		24-SEP-20	R5238110
Nitrate+Nitrite Nitrate and Nitrite as N	<0.45		0.45	mg/L		28-SEP-20	
Nitrite in Water by IC	0.10		0.10	9/ =			
Nitrite (as N)	<0.20	DLM	0.20	mg/L		24-SEP-20	R5238110
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		29-SEP-20	R5242756
Phenol (4AAP)	0.0045		0.0040			04.050.00	D5000010
Phenols (4AAP)	0.0015		0.0010	mg/L		24-SEP-20	R5236019
Phosphorus, Total Phosphorus (P)-Total	0.327		0.0030	mg/L		28-SEP-20	R5241526
Sulfate in Water by IC	0.02.		0.000	9			
Sulfate (SO4)	708		6.0	mg/L		24-SEP-20	R5238110
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0116		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Arsenic (As)-Total	0.00358		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cadmium (Cd)-Total	0.0000190		0.0000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Calcium (Ca)-Total Chromium (Cr)-Total	318 0.00060		0.050 0.00010	mg/L mg/l	25-SEP-20 25-SEP-20	25-SEP-20 25-SEP-20	R5240019 R5240019
Cobalt (Co)-Total	0.00083		0.00010	mg/L mg/L	25-SEP-20 25-SEP-20	25-SEP-20 25-SEP-20	R5240019 R5240019
Copper (Cu)-Total	0.00949		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Iron (Fe)-Total	0.742		0.010	mg/L	25-SEP-20	25-SEP-20	R5240019
Lead (Pb)-Total	0.000650		0.000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Magnesium (Mg)-Total	78.4		0.0050	mg/L	25-SEP-20	25-SEP-20	R5240019
Manganese (Mn)-Total	0.708		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Nickel (Ni)-Total	0.00669		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Potassium (K)-Total	59.1		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Sodium (Na)-Total Zinc (Zn)-Total	301		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
	0.0098		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Total Organic Carbon by Combustion							

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

L2505949 CONTD.... PAGE 4 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505949-1 ARV-2A							
Sampled By: CLIENT on 17-SEP-20 @ 09:09							
Matrix: EFFLUENT							
<b>Total Organic Carbon by Combustion</b> Total Organic Carbon	28		10	mg/L		24-SEP-20	R5237222
<b>Total Suspended Solids</b> Total Suspended Solids	14.9		3.0	mg/L		24-SEP-20	R5236461
pH	14.9		3.0	IIIg/L		24-3LF-20	K3230401
pH	8.04		0.10	pH units		24-SEP-20	R5235789
L2505949-2 ARV-4							
Sampled By: CLIENT on 17-SEP-20 @ 08:48							
Matrix: EFFLUENT							
Nunavut WW Group 1							
Alkalinity, Bicarbonate Bicarbonate (HCO3)	180		1.2	mg/L		25-SEP-20	
Alkalinity, Carbonate							
Carbonate (CO3)  Alkalinity, Hydroxide	<0.60		0.60	mg/L		25-SEP-20	
Hydroxide (OH)	<0.34		0.34	mg/L		25-SEP-20	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	147		1.0	mg/L		24-SEP-20	R5235789
Ammonia by colour Ammonia, Total (as N)	9.20		0.20	mg/L		25-SEP-20	R5241312
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	> 140		6.0	mg/L		24-SEP-20	R5242487
Carbonaceous BOD BOD Carbonaceous	26		20	mg/L		24-SEP-20	R5242487
Chloride in Water by IC Chloride (CI)	133		0.50	mg/L		24-SEP-20	R5238110
Conductivity Conductivity	757		1.0	umhos/cm		24-SEP-20	R5235789
Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms		PEHR	1.0	MPN/100mL		23-SEP-20	
Hardness Calculated	1380	PERK	10	IVIPIN/ TOUTIL		23-3EP-20	R5234537
Hardness (as CaCO3)	89.4	HTC	0.20	mg/L		28-SEP-20	
Mercury Total Mercury (Hg)-Total	0.000070		0.0000050	mg/L	28-SEP-20	28-SEP-20	R5241670
Nitrate in Water by IC Nitrate (as N)	0.367		0.020	mg/L		24-SEP-20	R5238110
Nitrate+Nitrite Nitrate and Nitrite as N	0.622		0.070	mg/L		28-SEP-20	
Nitrite in Water by IC Nitrite (as N)	0.255		0.010	mg/L		24-SEP-20	R5238110
Oil & Grease - Gravimetric Oil and Grease	<5.0		5.0	mg/L		29-SEP-20	R5242756
Phenol (4AAP) Phenols (4AAP)		DLM					
Phosphorus, Total	0.0404	DLIVI	0.0050	mg/L		24-SEP-20	R5236019
Phosphorus (P)-Total  Sulfate in Water by IC	5.97		0.030	mg/L		28-SEP-20	R5241526
Sulfate (SO4)	12.2		0.30	mg/L		24-SEP-20	R5238110
Total Metals in Water by CRC ICPMS Aluminum (Al)-Total	0.137		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Arsenic (As)-Total	0.00678		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cadmium (Cd)-Total	0.0000507		0.0000050	mg/L	25-SEP-20	25-SEP-20	R5240019

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

L2505949 CONTD.... PAGE 5 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505949-2 ARV-4							
Sampled By: CLIENT on 17-SEP-20 @ 08:48							
Matrix: EFFLUENT							
Total Metals in Water by CRC ICPMS Calcium (Ca)-Total	15.4		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Chromium (Cr)-Total	0.00119		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cobalt (Co)-Total	0.00129		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Copper (Cu)-Total	0.0226		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Iron (Fe)-Total	2.09		0.010	mg/L	25-SEP-20	25-SEP-20	R5240019
Lead (Pb)-Total	0.00108		0.000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Magnesium (Mg)-Total	12.4		0.0050	mg/L	25-SEP-20	25-SEP-20	R5240019
Manganese (Mn)-Total	0.202		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Nickel (Ni)-Total	0.00550		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Potassium (K)-Total	25.0		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Sodium (Na)-Total	101		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Zinc (Zn)-Total	0.0252		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Total Organic Carbon by Combustion							
Total Organic Carbon	127		10	mg/L		25-SEP-20	R5241321
Total Suspended Solids				,,		04.055.00	D-000101
Total Suspended Solids	208		3.0	mg/L		24-SEP-20	R5236461
<b>pH</b> pH	8.01		0.10	pH units		24-SEP-20	R5235789
L2505949-3 ARV-5				•			
Sampled By: CLIENT on 17-SEP-20 @ 09:27							
Matrix: EFFLUENT							
BTEX							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
Toluene	<0.0010		0.0010	mg/L		25-SEP-20	R5242014
Ethyl benzene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
o-Xylene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
m+p-Xylenes	<0.00040		0.00040	mg/L		25-SEP-20	R5242014
F1 (C6-C10)	<0.10		0.10	mg/L		25-SEP-20	R5242014
Surrogate: 4-Bromofluorobenzene (SS)	72.9		70-130	%		25-SEP-20	R5242014
CCME Total Hydrocarbons			2.42	,,		00.055.00	
F1-BTEX	<0.10		0.10	mg/L		30-SEP-20	
F2-Naphth	<0.10		0.10	mg/L		30-SEP-20	
F3-PAH Total Hydrocarbons (C6 C50)	<0.25		0.25	mg/L		30-SEP-20 30-SEP-20	
Total Hydrocarbons (C6-C50)  Sum of Xylene Isomer Concentrations	<0.38		0.38	mg/L		3U-3EP-2U	
Xylenes (Total)	<0.00064		0.00064	mg/L		30-SEP-20	
F2-F4 (O.Reg.153/04)	-400		400	/I	25 000 00	20 000 00	DE044400
F2 (C10-C16) F3 (C16-C34)	<100 <250		100 250	ug/L	25-SEP-20 25-SEP-20	28-SEP-20 28-SEP-20	R5241403 R5241403
F4 (C34-C50)	<250 <250		250 250	ug/L ug/L	25-SEP-20 25-SEP-20	28-SEP-20 28-SEP-20	R5241403 R5241403
Chrom. to baseline at nC50	<250 YES		200	ug/L	25-SEP-20 25-SEP-20	28-SEP-20 28-SEP-20	R5241403 R5241403
Surrogate: 2-Bromobenzotrifluoride	88.4		60-140	%	25-SEP-20 25-SEP-20	28-SEP-20	R5241403 R5241403
CCME PAHs in mg/L	00. <del>4</del>		00-140	70	20 011 -20	20 011 -20	110271700
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
•	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphinylene				<i>y</i> –			
Acenaphthylene Anthracene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828

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

L2505949 CONTD.... PAGE 6 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier	* D.L.	Units	Extracted	Analyzed	Batch
L2505949-3 ARV-5							
Sampled By: CLIENT on 17-SEP-20 @ 09:27							
Matrix: EFFLUENT							
CCME PAHs in mg/L							
Benzo(a)anthracene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)pyrene	<0.000050		0.0000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(k)fluoranthene Chrysene	<0.000010 <0.000020		0.000010	mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Dibenzo(a,h)anthracene	<0.000020		0.000020	mg/L mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828
Fluoranthene	<0.000020		0.0000030	mg/L	25-SEP-20	30-SEP-20	R5242828
Fluorene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Naphthalene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Phenanthrene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Pyrene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Quinoline	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
B(a)P Total Potency Equivalent Surrogate: d8-Naphthalene	<0.000030		0.000030	mg/L	25-SEP-20	30-SEP-20	R5242828
Surrogate: 08-Naphthalene Surrogate: d10-Phenanthrene	102.2 97.7		50-150 50-150	% %	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Surrogate: d12-Chrysene	84.7		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d10-Acenaphthene	90.7		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d9-Acridine (SS)	87.2		50-150	%	25-SEP-20	30-SEP-20	R5242828
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	58.3		1.2	mg/L		25-SEP-20	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		25-SEP-20	
Alkalinity, Hydroxide Hydroxide (OH)	<0.34		0.34	mg/L		25-SEP-20	
Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3)	47.8		1.0	mg/L		24-SEP-20	R5235789
Ammonia by colour							
Ammonia, Total (as N)	0.018		0.010	mg/L		25-SEP-20	R5241312
Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand	<2.0		2.0	mg/L		24-SEP-20	R5242487
Carbonaceous BOD	-2.0		2.0	9/ _		52. 20	1.102-72-701
BOD Carbonaceous	2.0		2.0	mg/L		24-SEP-20	R5242487
Chloride in Water by IC							
Chloride (CI)	359		1.0	mg/L		24-SEP-20	R5238110
Conductivity Conductivity	1280		1.0	umhos/cm		24-SEP-20	R5235789
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	10	PEHR	10	MPN/100mL		23-SEP-20	R5234537
Hardness Calculated Hardness (as CaCO3)	188	HTC	0.20	mg/L		28-SEP-20	
Mercury Total Mercury (Hg)-Total	<0.000050		0.0000050	mg/L	28-SEP-20	28-SEP-20	R5241670
Nitrate in Water by IC Nitrate (as N)	<0.040	DLM	0.040	mg/L		24-SEP-20	R5238110
Nitrate+Nitrite	10.070		0.070	me/I		20 CED 20	
Nitrate and Nitrite as N	<0.070		0.070	mg/L		28-SEP-20	
Nitrite in Water by IC Nitrite (as N)	<0.020	DLM	0.020	mg/L		24-SEP-20	R5238110
Oil & Grease - Gravimetric							

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

L2505949 CONTD.... PAGE 7 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505949-3 ARV-5							
Sampled By:   CLIENT on 17-SEP-20 @ 09:27							
Matrix: EFFLUENT							
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		29-SEP-20	R5242756
Phenol (4AAP)						04.055.55	
Phenols (4AAP)	<0.0010		0.0010	mg/L		24-SEP-20	R5236019
Phosphorus, Total Phosphorus (P)-Total	0.0134		0.0030	mg/L		28-SEP-20	R5241526
Sulfate in Water by IC	0.0104		0.0000	g/ L		20 021 -20	1.0241020
Sulfate (SO4)	8.82		0.60	mg/L		24-SEP-20	R5238110
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0132		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Arsenic (As)-Total	0.00041		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cadmium (Ca) Total	<0.0000050		0.0000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Calcium (Ca)-Total Chromium (Cr)-Total	27.6 0.00021		0.050 0.00010	mg/L mg/L	25-SEP-20 25-SEP-20	25-SEP-20 25-SEP-20	R5240019 R5240019
Cobalt (Co)-Total	0.00021		0.00010	mg/L	25-SEP-20 25-SEP-20	25-SEP-20 25-SEP-20	R5240019 R5240019
Copper (Cu)-Total	<0.00013		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Iron (Fe)-Total	1.28		0.010	mg/L	25-SEP-20	25-SEP-20	R5240019
Lead (Pb)-Total	<0.000050		0.000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Magnesium (Mg)-Total	28.8		0.0050	mg/L	25-SEP-20	25-SEP-20	R5240019
Manganese (Mn)-Total	0.0735		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Nickel (Ni)-Total	<0.00050		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Potassium (K)-Total	7.42		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Sodium (Na)-Total Zinc (Zn)-Total	167 0.0120		0.050 0.0030	mg/L	25-SEP-20 25-SEP-20	25-SEP-20 25-SEP-20	R5240019
Total Organic Carbon by Combustion	0.0120		0.0030	mg/L	20-3EP-20	20-3EP-20	R5240019
Total Organic Carbon by Combustion  Total Organic Carbon	6.97		0.50	mg/L		24-SEP-20	R5237222
Total Suspended Solids				3			
Total Suspended Solids	70.7		3.0	mg/L		24-SEP-20	R5236461
pH							
pH	7.46		0.10	pH units		24-SEP-20	R5235789
L2505949-4 ARV-6							
Sampled By: CLIENT on 17-SEP-20 @ 09:52							
Matrix: EFFLUENT							
BTEX							
BTX plus F1 by GCMS Benzene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
Toluene	<0.00030		0.00030	mg/L		25-SEP-20	R5242014 R5242014
Ethyl benzene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
o-Xylene	<0.00050		0.00050	mg/L		25-SEP-20	R5242014
m+p-Xylenes	<0.00040		0.00040	mg/L		25-SEP-20	R5242014
F1 (C6-C10)	<0.10		0.10	mg/L		25-SEP-20	R5242014
Surrogate: 4-Bromofluorobenzene (SS)	73.3		70-130	%		25-SEP-20	R5242014
CCME Total Hydrocarbons	-0.40		0.40	mall		20 000 00	
F1-BTEX F2-Naphth	<0.10 <0.10		0.10 0.10	mg/L mg/L		30-SEP-20 30-SEP-20	
F3-PAH	<0.10		0.10	mg/L		30-SEP-20 30-SEP-20	
Total Hydrocarbons (C6-C50)	<0.38		0.23	mg/L		30-SEP-20	
Sum of Xylene Isomer Concentrations				3			
Xylenes (Total)	<0.00064		0.00064	mg/L		30-SEP-20	
F2-F4 (O.Reg.153/04)							
F2 (C10-C16)	<100		100	ug/L	25-SEP-20	28-SEP-20	R5241403

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

L2505949 CONTD.... PAGE 8 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505949-4 ARV-6							
Sampled By: CLIENT on 17-SEP-20 @ 09:52							
Matrix: EFFLUENT							
<b>F2-F4 (O.Reg.153/04)</b> F3 (C16-C34)	<250		250	ug/L	25-SEP-20	28-SEP-20	R5241403
F4 (C34-C50)	<250		250	ug/L	25-SEP-20	28-SEP-20	R5241403
Chrom. to baseline at nC50	YES			-5-5-	25-SEP-20	28-SEP-20	R5241403
Surrogate: 2-Bromobenzotrifluoride	86.4		60-140	%	25-SEP-20	28-SEP-20	R5241403
CCME PAHs in mg/L							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Acenaphthylene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Anthracene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Acridine	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)anthracene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Benzo(k)fluoranthene Chrysene	<0.000010 <0.000020		0.000010 0.000020	mg/L mg/L	25-SEP-20 25-SEP-20	30-SEP-20 30-SEP-20	R5242828 R5242828
Dibenzo(a,h)anthracene	<0.000020		0.000020	mg/L	25-SEP-20 25-SEP-20	30-SEP-20	R5242828
Fluoranthene	<0.000030		0.0000030	mg/L	25-SEP-20	30-SEP-20	R5242828
Fluorene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Indeno(1,2,3-cd)pyrene	<0.000020		0.000020	mg/L	25-SEP-20	30-SEP-20	R5242828
Naphthalene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Phenanthrene	<0.000050		0.000050	mg/L	25-SEP-20	30-SEP-20	R5242828
Pyrene	<0.000010		0.000010	mg/L	25-SEP-20	30-SEP-20	R5242828
Quinoline	<0.000030	DLQ	0.000030	mg/L	25-SEP-20	30-SEP-20	R5242828
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	25-SEP-20	30-SEP-20	R5242828
Surrogate: d8-Naphthalene	108.0		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d10-Phenanthrene	104.4		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d12-Chrysene	89.3		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d10-Acenaphthene	98.0		50-150	%	25-SEP-20	30-SEP-20	R5242828
Surrogate: d9-Acridine (SS)	94.2		50-150	%	25-SEP-20	30-SEP-20	R5242828
Nunavut WW Group 1							
Alkalinity, Bicarbonate	101		1 2	ma/l		25 SED 20	
Bicarbonate (HCO3)	101		1.2	mg/L		25-SEP-20	
Alkalinity, Carbonate Carbonate (CO3)	<0.60		0.60	mg/L		25-SEP-20	
Alkalinity, Hydroxide			0.00				
Hydroxide (OH)	<0.34		0.34	mg/L		25-SEP-20	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	82.9		1.0	mg/L		24-SEP-20	R5235789
Ammonia by colour							
Ammonia, Total (as N)	0.102		0.010	mg/L		25-SEP-20	R5241312
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		24-SEP-20	R5242487
Carbonaceous BOD	-0.0		0.0	pa a //		04.055.00	DE040407
BOD Carbonaceous	<2.0		2.0	mg/L		24-SEP-20	R5242487
Chloride in Water by IC Chloride (CI)	122		0.50	mg/L		24-SEP-20	R5238110
Conductivity	122		0.50	illy/L		2 <del>1</del> -3LF-20	120200110
Conductivity	560		1.0	umhos/cm		24-SEP-20	R5235789
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	<10	PEHR	10	MPN/100mL		23-SEP-20	R5234537
	I						

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

L2505949 CONTD.... PAGE 9 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2505949-4 ARV-6							
Sampled By: CLIENT on 17-SEP-20 @ 09:52							
Hardness Calculated Hardness (as CaCO3)	123	HTC	0.20	mg/L		28-SEP-20	
Mercury Total Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	28-SEP-20	28-SEP-20	R5241670
Nitrate in Water by IC Nitrate (as N)	<0.020		0.020	mg/L		24-SEP-20	R5238110
Nitrate+Nitrite Nitrate and Nitrite as N	<0.070		0.070	mg/L		28-SEP-20	
Nitrite in Water by IC							DE000440
Nitrite (as N)  Oil & Grease - Gravimetric	<0.010		0.010	mg/L		24-SEP-20	R5238110
Oil and Grease Phenol (4AAP)	<5.0		5.0	mg/L		29-SEP-20	R5242756
Phenols (4AAP)  Phosphorus, Total	<0.0010		0.0010	mg/L		24-SEP-20	R5236019
Phosphorus (P)-Total	0.0428		0.0030	mg/L		28-SEP-20	R5241526
Sulfate in Water by IC Sulfate (SO4)	0.87		0.30	mg/L		24-SEP-20	R5238110
Total Metals in Water by CRC ICPMS Aluminum (AI)-Total	0.291		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Arsenic (As)-Total	0.00054		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cadmium (Cd)-Total	0.0000119		0.0000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Calcium (Ca)-Total	31.9		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Chromium (Cr)-Total	0.00090		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Cobalt (Co)-Total	0.00083		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Copper (Cu)-Total	0.00133		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Iron (Fe)-Total	8.43		0.010	mg/L	25-SEP-20	25-SEP-20	R5240019
Lead (Pb)-Total	0.000484		0.000050	mg/L	25-SEP-20	25-SEP-20	R5240019
Magnesium (Mg)-Total	10.5		0.0050	mg/L	25-SEP-20	25-SEP-20	R5240019
Manganese (Mn)-Total	0.853		0.00010	mg/L	25-SEP-20	25-SEP-20	R5240019
Nickel (Ni)-Total	0.00112		0.00050	mg/L	25-SEP-20	25-SEP-20	R5240019
Potassium (K)-Total	5.16		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Sodium (Na)-Total	58.8		0.050	mg/L	25-SEP-20	25-SEP-20	R5240019
Zinc (Zn)-Total	0.0709		0.0030	mg/L	25-SEP-20	25-SEP-20	R5240019
Total Organic Carbon by Combustion Total Organic Carbon	7.21		0.50	mg/L		24-SEP-20	R5237222
Total Suspended Solids Total Suspended Solids	29.3		3.0	mg/L		24-SEP-20	R5236461
pH							
pH	7.55		0.10	pH units		24-SEP-20	R5235789

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

#### L2505949 CONTD....

PAGE 10 of 12 Version: FINAL

### Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.

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

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

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

ALK-HCO3HCO3-CALC-Alkalinity, Bicarbonate CALCULATION Water

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

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

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

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

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

**BOD-CBOD-WP** Water Carbonaceous BOD APHA 5210 B

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

Biochemical Oxygen Demand (BOD) **APHA 5210 B** 

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

BTFXS+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 **APHA 5310 B-WP** Water Total Organic Carbon by Combustion

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.

**APHA 2510B** Conductivity

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

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

L2505949 CONTD....
PAGE 11 of 12
Version: FINAL

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

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

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

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

HARDNESS-CALC-WP Water Hardness Calculated APHA 2340B

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PH-WP Water pH APHA 4500H

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

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

An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

L2505949 CONTD.... PAGE 12 of 12

Version: FINAL

### Reference Information

**Test Method References:** 

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

SO4-IC-N-WP Water Sulfate in Water by IC EPA 300.1 (mod)

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

SOLIDS-TOTSUS-WP Water Total Suspended Solids APHA 2540 D (modified)

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

XYLENES-SUM-CALC-

Water

Sum of Xylene Isomer Concentrations

CALCULATED RESULT

WP

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

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

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

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

#### **Chain of Custody Numbers:**

#### **GLOSSARY OF REPORT TERMS**

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

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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

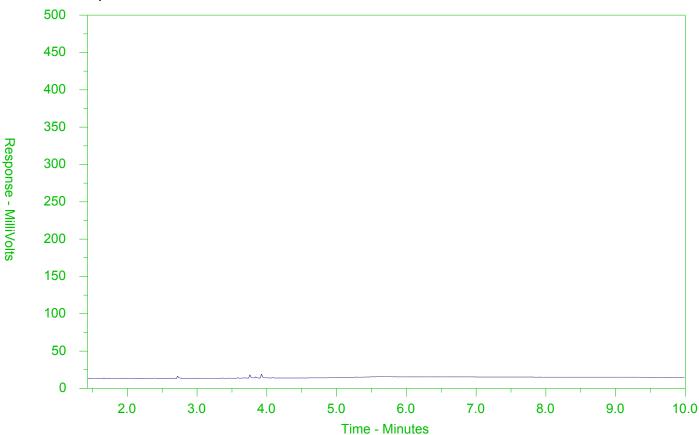
Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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

### CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2505949-1 Client Sample ID: ARV-2A



<b>←</b> -F2-	→←	—F3——►4—F4—	<b>→</b>				
nC10	nC16	nC34	nC50				
174°C	287°C	481°C	575°C				
346°F	549°F	898°F	1067°F				
Gasolin	ie →	<b>←</b> Mo	otor Oils/Lube Oils/Grease——	-			
<b>←</b>	← Diesel/Jet Fuels →						

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

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

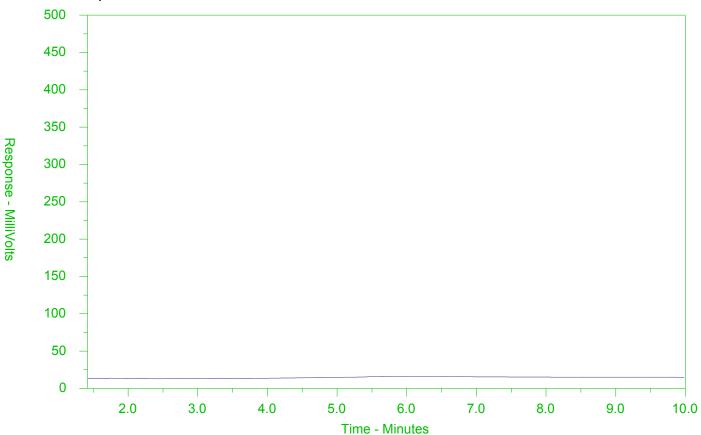
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

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

## CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2505949-3 Client Sample ID: ARV-5



<b>←</b> -F2-	→←	_F3 <b>→</b> F4-	<b>→</b>				
nC10	nC16	nC34	nC50				
174°C	287°C	481°C	575°C				
346°F	549°F	898°F	1067°F				
Gasolin	ie →	<b>←</b> Mo	tor Oils/Lube Oils/Grease	-			
•	← Diesel/Jet Fuels →						

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

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

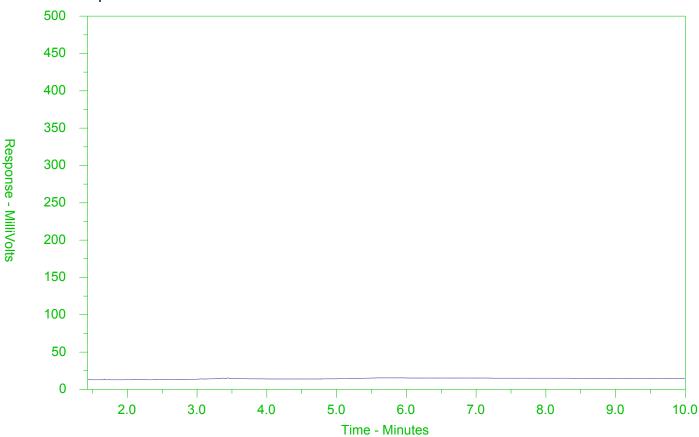
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

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

## CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2505949-4 Client Sample ID: ARV-6



<b>←</b> -F2-	→←	—F3 <b>→</b> ←—F4—	<b>→</b>				
nC10	nC16	nC34	nC50				
174°C	287°C	481°C	575°C				
346°F	549°F	898°F	1067°F				
Gasolin	ie →	← Mot	tor Oils/Lube Oils/Grease———	-			
← Diesel/Jet Fuels→							

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

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

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

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

300 17/20



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

L2505949 COTO

COC Number: 15 -

2505949

Page 1 of

Canada Toll Free: 1 800 668 9878 www.alsglobal.com Report Format / Distribution Contact and company name below will appear on the final report Report To &P TATs with your AM - surcharges will apply Select Report Format: PDF PDF (DIGITAL) Regular [R] Transpard TAT if received by 3 pm - business days - no surcharges apply Company Hamlet of Arviat Quality Control (QC) Report with Report 🔲 YES 🗍 NO. Laura Tassiuk 4 day [P4] 1 Business day [E1] Contact 867-857-2841 Compare Results to Criteria on Report - provide details below if box checked 3 day [P3] Phone: Same Day, Weekend or  $\Box$ Company address below will appear on the final report 2 day [P2] Statutory holiday [E0] PO Box 150 Email 1 or Fax waterderk@arviat.ca Date and Time Required for all E&P TATs: Street: dd-maineyy impan Arviat, NU City/Province: Email 2 cfaulkner@gov.nu.ca or tests that can not be performed according to the service level selected, you will be contacted. XOC-DEO Postal Code: Email 3 scollins@gov.nu.ca Analysis Request VES □ NO invoice To Same as Report To Invoice Distribution Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below ☑ YES □ NO Copy of Invoice with Report Select Invoice Distribution: 🔽 EMAIL 🗌 MAIL 🦳 FAX Email 1 or Fax Company: Contact: Email 2 **Project Information** Oil and Gas Required Fields (client use) ALS Account # / Quote #: W10578 AFE/Cost Center: PO# Major/Minor Code: Job #: Routing Code: 5 PO / AFE: Requisitioner. LSD: Location: ALS Contact: ALS Lab Work Order # (lab use only) Sampler: Oil & Grease BTEX-F1 PAH (x2) Sample Identification and/or Coordinates Date Time 80D ALS Sample # ota Sample Type flab use only) (This description will appear on the report) (dd-mmm-yy) (hh:mm) ARV-2a りぼしねつ 91000 R Effluent R R R R R R R R R 17 ARV-4 Effluent R R R Ŕ 10 ARV-5 Effluent R R R R R R R R R 17 ARV-6 R R R Effluent R R R 17 R SAMPLE CONDITION AS RECEIVED (lab use only) Special instructions / Specify Criteria to add on report by clicking on the drop-down list below Drinking Water (DW) Samples<sup>1</sup> (client use) (electronic CQC only) SIF Observations Yes Frozen Are samples taken from a Regulated DW System? YES 📝 NO Cooling Initiated Are samples for human drinking water use? NUNAVUT-WW-GRP1-WP, BTEX, F1-F4, PAH NITIAL COOLER TEMPERATURES \*C ▼ FINAL COOLER TEMPERATURES °C ☐ YES ☑ NO INITIAL SHIPMENT RECEPTION (lab use only) SHIPMENT RELEASE (client use) FINAL SHIPMENT RECEPTION (lab use only) Released by: Received by: Time: Time: Received by: Date: Time:

300 17/20

# ALS Environmental

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

25050 (0.00

coc Number: 15 . しょこ

.

Page 1 of

	www.alsglobal.com																				
Report To	Contact and company nan	ne below will app	ear on the final report			/ Distribution -		1					į	&P TAI	's with	your A	M - sure	harges	will app	ply	
Company:	Hamlet of Arviat			Select Report F	ormat: 📝 PDF [	J EXCEL [] ED	D (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply							harges apply						
Contact:	Laura Tassiuk	,		Quality Control (QC) Report with Report 🔲 YES 🗍 NO				\$\frac{2}{4} \text{day [P4]}					1 Business day [E1]				· 🗅 📉				
Phone:	867-857-2841			Compare Resu	ılts to Criteria on Report	- provide details belo	w if box checked	PORT TEM	3	đay [F	23]			ROEN	5	Same	Day,	Weel	kend o	or	·
	Company address below will ap	pear on the final	report	Select Distribut	ion: 🖸 EMAIL	MAIL []	FAX	8 F	2	day (F	2]			EME					ay [E0		
Street:	PO Box 150			Email 1 or Fax	waterclerk@arviat	,ca	•		Date ar	nd Time	Requir	ed for a	II E&P	TATs:				dd-n	ן-נקמונ	ly htt	nan
City/Province:	Arviat, NU			Email 2	cfaulkner@gov.nu	.ca		For tes	is that c	an not b	e perfore	ned acco	rding to	the se	vice le	vel sele	ected, y	ou Will I	oe contr	acted,	
Postal Code:	XOC-OF	50		Email 3	scollins@gov.nu.c	а							- 4	naly	sis R	eque	st				
Invoice To	Same as Report To	✓ YES [	NO .		Invoice Dis	tribution	·		Indic	ate Fift	ered (F)	, Preser	ved (P)	or Filte	red an	id Pres	served	(F/P) b	elow		
	Copy of Invoice with Report	☑ YES [	_ NO	Select Invoice I	Distribution: 🔽 EM	AIL [ MAIL [	FAX														
Company:				Email 1 or Fax					-												
Contact:				Email 2																	ya
	Project Inform	mation		Oil	and Gas Required	l Fields (client u	ıse)														ije
ALS Account#	/ Quote #: W10	578		AFE/Cost Center:		PO#															uta
Job #:				Major/Minor Code:		Routing Code:															ğ.
PO / AFE:				Requisitioner:				]					ລ			1					20
LSD:				Location:				]			Ċ		S (X		_						Number of Containers
ALS Lab Wor	k Order# (lab use only)			ALS Contact:		Sampler:					itais	Fotal Mercury	Nutrients/Phenols (x2)		Grease (x2)	. (x3)	6				<b>Z</b>
ALS Sample #	Sample I	dentification	and/or Coordinates		Date	Time		1 ୍ଲା	ije	Ö	Fotal Metafs	I Me	-ğ-	- <u>e</u> .	9	BTEX-F1	(Z)	(S)			:
(lab use only)	(This de	scription will a	appear on the report)		(dd-mmm-yy)	(hh:mm)	Sample Type	BOD	Routine	CBOD	Tota	Tota	ğ	Bacteri	<u>0</u>		F2-F4	AH	. !		
	ARV-2a	•	· · · · · · · · · · · · · · · · · · ·		17105/20	9:09an	Effluent	R	R	R	R	R	R	R	R	R	R	R			· 17-
	ARV-4			-	17109120	848 au	Effluent	R	R	R	R	R	R	R	R						. 10
	ARV-5				17/19/20	927an	Effluent	R	R	R	R	R	R	R	R	R	R	R	7.7		17
	ARV-6				17/19/20	952an	Effluent	R	R	R	R	R	R	R	R	R	R	R			17
					1 7075	100												: ]			· · · · · ·
-																-			$\overline{}$		
	· .	<del>- · · ·</del>									-			$\dashv$	Ħ	$\vdash$		$\dashv$	$\neg$	$\dashv$	-
					-			$\vdash$							-	$\Box$			$\dashv$		
				<del>-</del>						-				$\dashv$	-	$\dashv$		-	∤		
					_	<del>-</del>	_								_		:				
	· <u>.</u>				<u> </u>													-	<u> ]</u>		
	1			·																	_
Deinking	Water (DW) Samples <sup>1</sup> (clier	ot upp)	Special Instructions / S			king on the drop-c	lown list below				SAMP	LE CC	TICM	ON A	SRE	CEI	/ED (I	ab us	e oni	y)	. 1 1 W
			·	(elec	tronic COC only)	<del></del>		Froze	n					SIF C	bser	vation	15	Yes		No	
	n from a Regulated DW System	m?						ice Pa	acks		Ice C	ubes		Custo	dy se	eal int	act	Yes		No	
<del></del> -	ES 💽 NO							Coolii	ig Initi												
Are samples for human drinking water use? NUNAVUT-WW-GRP1-		-WP, BTEX, F1-F	4, PAH				AIIT	AL COC	DLER TE	MPERA	TURES	°C			FINAL	COOL	ER TEN	MPERA	TURES °C		
☐ YES ☑ NO						<u>  7-7                                  </u>															
	SHIPMENT RELEAS	<del>`</del>			INITIAL SHIPMEN		ab use only)						AL SI	IIPM	NT			N (lab	use o		
Released by:	Date C	المحا	13me:	Received by:	40-	Date: OI	9/20	Time:	ادر	Rece	ived by	y:				Date	:			Ţ	Time:
REFER TO BACK	PAGE FOR ALS LOCATIONS A	Y WT I /	CINECRMATION	<u> </u>	WHI	TE - LABORATOR	· <i>I</i>	OW - 0		COPY	, —										OCTOBER 2015 FRONT

# ANNUAL REPORT FOR THE HAMLET OF ARVIAT

## Appendix D: Hazardous Materials Spill Database, Arviat 2020

Spill	Occurance Date -	Spill Region	Location	Location Description	Product Spilled	Quantity	Measurement	Spill Cause	Lead Agency
spill- 2020428	November 6, 2020	Keewatin	Arviat, Community, Nunavut	Arviat Gas Bar	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	113.65	Litres	Breakage	GN - Government of Nunavut
spill- 2020194	June 25, 2020	Keewatin	Arviat, Community, Nunavut	Northern Store	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	100.00	Litres	Breakage	GN - Government of Nunavut
spill- 2020174	June 10, 2020	Keewatin	Arviat, Community, Nunavut	308 7th Avenue	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	300.00		Breakage	GN - Government of Nunavut
spill- 2020123	May 4, 2020	Keewatin	Arviat, Community, Nunavut	Visitor's Centre, 621 3rd Avenue	Petroleum - fuel oil (jet A, diesel, turbo A, heat)	500.00	Litres	Breakage	GN - Government of Nunavut
spill- 2020108	April 22, 2020	Keewatin	Arviat, Community, Nunavut	602A- D/404A-D 6th Ave	Wastewater (sewage, mine tailings)	200.00	Litres	Breakage	GN - Government of Nunavut
spill- 2020047	February 14, 2020	Keewatin	Arviat, Community, Nunavut	New RCMP Detachment - 4th Avenue	Chemicals (including transformer oils)	410.00	Litres	Breakage	GN - Government of Nunavut

# ANNUAL REPORT FOR THE HAMLET OF ARVIAT

Appendix E: Arviat 2020 Sampling Summary

Arviat ARV-2A

ARV-2A		1	2020							
Parameter	Unit	DL	13-Jul-20	29-Jul-20	16-Sep-20	17-Sep-20				
Alkalinity										
Bicarbonate (HCO3)	mg/L	1.2	432	488	493	483				
Carbonate (CO3)	mg/L	0.60	0.60	0.60	<0.60	<0.60				
Hydroxide (OH)	mg/L	0.34	0.34	0.34	<0.34	<0.34				
Total (as CaCO3)	mg/L	1.0	354	400	404	396				
Ammonia by Colour  Total (as N)	mg/L	0.010	3.72	5.69	5.60	5.40				
Biochemical Oxygen Demand (BOD)	IIIg/ L	0.010	3.72	3.03	5.00	5.40				
Biochemical Oxygen Demand	mg/L	20	44	29.4	6	6.1				
Carbonaceous BOD	g,									
BOD Carbonaceous	mg/L	20	34.6	18.5	5.5	7.7				
Chloride in Water by IC										
Chloride (CI)	mg/L	10	573	477	408	415				
Conductivity										
Conductivity	umhos/cm	1.0	3360	3020	3030	3030				
Fecal Coliforms Fecal Coliforms	MDN/100ml	2	50	60	10	20				
Hardness Calculated	MPN/100mL	3	50	60	10	30				
Hardness (as CaCO3)	mg/L	0.30	959	971	1090	1120				
Mercury Total	6/ -	5.00	333	J. 2	1000	1120				
Mercury (Hg)	mg/L	0.000200	0.0000160	0.0000180	0.0000080	0.0000080				
Nitrate in Water by IC										
Nitrate (as N)	mg/L	0.020	0.40	0.40	<0.40	<0.40				
Nitrate + Nitrite										
Nitrate and Nitrite as N	mg/L	0.070	0.45	0.45	<0.45	<0.45				
Nitrite in Water by IC										
Nitrite (as N)	mg/L	0.010	0.20	0.20	<0.20	<0.20				
Oil & Grease - Gravimetric		2.00	Γ.0	Γ.0	<b>4</b> Ε.0	<b>4</b> Ε.0				
Oil and Grease  Phenol	mg/L	2.00	5.0	5.0	<5.0	<5.0				
Phenols	mg/L	0.0010	0.0029	0.0041	0.0018	0.0015				
Phosphorus, Total	6/ =	0.0010	0.0025	0100112	0.0010	0.0025				
Phosphorus (P)	mg/L	0.10	0.569	0.689	0.329	0.327				
Sulfate in Water by IC										
Sulfate (SO4)	mg/L	0.30	686	665	699	708				
Total Metals by ICP-MS										
Aluminium (Al)	mg/L	0.0050	0.435	0.0145	0.0116	0.0116				
Arsenic (As)	mg/L	0.00020	0.00465	0.00531	0.00355	0.00358				
Cadmium (Cd)	mg/L	0.000010	0.0000777	0.0000630	0.0000171	0.0000190				
Calcium (Ca) Chromium (Cr)	mg/L mg/L	0.10 0.0010	253 0.00226	276 0.00147	307 0.00070	318 0.00060				
Cobalt (Co)	mg/L	0.0010	0.00228	0.00147	0.00070	0.00083				
Copper (Cu)	mg/L	0.00020	0.00278	0.00141	0.00081	0.00083				
Iron (Fe)	mg/L	0.010	1.07	1.19	0.726	0.742				
Lead (Pb)	mg/L	0.000090	0.00112	0.00127	0.00066	0.00065				
Magnesium (Mg)	mg/L	0.010	79.4	68.6	77.5	78.4				
Manganese (Mn)	mg/L	0.00030	0.759	0.972	0.699	0.708				
Nickel (Ni)	mg/L	0.0020	0.0109	0.00814	0.00677	0.00669				
Potassium (K)	mg/L	0.020	63.4	58	57	59.1				
Sodium (Na)	mg/L	0.030	348	307	297	301				
Zinc (Zn)	mg/L	0.0020	0.0905	0.0822	0.0137	0.0098				
Total Organic Carbon by Combustion  Total Organic Carbon	mg/L	0.50	63.1	36.6	28.8	28				
Total Suspended Solids	IIIg/L	0.30	03.1	30.0	20.0	20				
Total Suspended Solids	mg/L	5.0	42.3	29.7	12.3	14.9				
pH										
pH	pH Units	0.10	8.04	8.05	8.05	8.04				
Benzene	mg/L	0.00050	0.00050	0.00050	<0.00050	<0.00050				
Toluene	mg/L	0.0010	0.0010	0.0010	<0.0010	<0.0010				
Ethyl Benzene	mg/L	0.00050	0.00050	0.00050	<0.00050	<0.00050				
o-Xylene	mg/L	0.00050	0.00050	0.00050	<0.00050	<0.00050				
F1 (C6-C10)	mg/L	0.10	0.10	0.10	<0.10	<0.10				
F2 (C10-C16)	mg/L	0.25	0.14	0.10	<0.10	<0.10				
F3 (C16-C34) F4 (C34-C50)	mg/L mg/L	0.25 0.25	0.30 0.25	0.25 0.25	<0.25 <0.25	<0.25 <0.25				
Total Hydrocarbons (C6-C50)	mg/L	0.23	0.23	0.23	<0.38	<0.38				
Total Hydrocal bolls (co coo)	1116/ L	0.77	0.44	0.50	10.50	10.50				

Arviat ARV-4

Parameter   Unit   Di.   33-Jul-20   29-Jul-20   16-Sep-20   17-Sep-20	ARV-4				20	020	
Bicarbonate (RCO3)	Parameter	Unit	DL	13-Jul-20			17-Sep-20
Carbonate (CO3)	Alkalinity						
Hydroxide (DH)	Bicarbonate (HCO3)	mg/L	1.2	234	323	173	180
Total (as Ca(3)   mg/L   1.0   192   265   150   147	Carbonate (CO3)	mg/L	0.60	0.60	0.60	4.80	<0.60
Ammonia by Colour   Total (as N)   mg/L   0.20   25.40   43.10   9.06   9.20	,						
Total (as N)		mg/L	1.0	192	265	150	147
Biochemical Oxygen Demand (BOD)   Biochemical Oxygen Demand   mg/L   20   93   45   > 140   > 140   Sinchemical Oxygen Demand   mg/L   20   47   31.1   23.1   26   23.1   26   27   27   27   27   27   27   27		/	0.00	25.40	12.10	0.05	0.20
Biochemical Oxygen Demand   Carbonaceous BOD	, , ,	mg/L	0.20	25.40	43.10	9.06	9.20
Carbonaceous BOD   BOD Carbonaceous BOD   BOD Carbonaceous   Chloride in Water by IC		ma/l	20	02	45	> 140	> 140
BOD Carbonaceous		IIIg/L	20	33	43	> 140	> 140
Chloride in Water by IC		mg/L	20	47	31.1	23.1	26
Chloride (CI)		8/ =			0.1.1	20.2	
Conductivity		mg/L	10	87	122	131	133
Fecal Coliforms	Conductivity						
Fecal Coliforms	Conductivity	umhos/cm	1.0	672	945	724	757
Hardness Calculated   Hardness (as CaCO3)	Fecal Coliforms						
Hardness (as CaCO3)	Fecal Coliforms	MPN/100mL	3	19900	14100	2760	1380
Mercury Total   Mercury (Hg)   mg/L   0.00020   0.0000070   0.000070   0.000070   0.000070   0.000070   0							
Mercury (Hg)	` '	mg/L	0.30	72.3	67.2	90.4	89.4
Nitrate in Water by IC	•						
Nitrate (as N)		mg/L	0.00020	0.0000070	0.0000080	0.0000070	0.0000070
Nitrate + Nitrite   Nitrate and Nitrate as N   mg/L   0.070   0.325   0.141   0.637   0.622		/I	0.020	0.200	0.141	0.270	0.267
Nitrate and Nitrite as N   mg/L   0.070   0.325   0.141   0.637   0.622	` '	mg/L	0.020	0.260	0.141	0.378	0.367
Nitrite in Water by IC		mg/l	0.070	0.325	0.1/11	0.637	0.622
Nitrite (as N)		IIIg/L	0.070	0.323	0.141	0.037	0.022
Oil & Grease - Gravimetric         mg/L         2.0         5.0         5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         <5.0         Phonol         Phonol         Phonol         Phosphorus (P)         mg/L         0.0010         0.0078         0.0010         0.0415         0.0404         Avaluation         0.0010         0.0010         0.0010         0.0011         <		mg/l	0.010	0.065	0.020	0.259	0.255
Oil and Grease         mg/L         2.0         5.0         ≤5.0         <5.0           Phenols           Phenols         0.0010         0.0078         0.0010         0.0415         0.0404           Phosphorus, Total         0.001         0.0078         0.0010         0.0415         0.0404           Phosphorus, Portal         0.001         0.0077         0.0010         0.0415         0.0404           Sulfate in Water by IC         0.001         6.0         3.91         7.26         12.2         12.2           Sulfate (SO4)         mg/L         6.0         3.91         7.26         12.2         12.2           Total Metals by ICP-MS         0.0000         0.0074         0.09950         0.14500         0.13700           Arsenic (As)         mg/L         0.00020         0.00427         0.00560         0.00678           Cadmium (Cd)         mg/L         0.000010         0.000070         0.000481         0.000569         0.000507           Calcium (Ca)         mg/L         0.0001         0.00070         0.000481         0.000569         0.000507           Calcium (Ca)         mg/L         0.0001         0.00015         0.00143         0.0015         0.000507 <td>, ,</td> <td>6/ =</td> <td>0.010</td> <td>0.005</td> <td>0.020</td> <td>0.233</td> <td>0.233</td>	, ,	6/ =	0.010	0.005	0.020	0.233	0.233
Phenol   Phenols   mg/L   0.0010   0.0078   0.0010   0.0415   0.0404		mg/L	2.0	5.0	5.0	<5.0	<5.0
Phosphorus, Total		O,					
Phosphorus (P)   mg/L   0.10   7.10   10.6   5.4   5.97	Phenols	mg/L	0.0010	0.0078	0.0010	0.0415	0.0404
Sulfate in Water by IC   Sulfate (SO4)   mg/L   6.0   3.91   7.26   12.2   12.2	Phosphorus, Total						
Sulfate (SO4)	Phosphorus (P)	mg/L	0.10	7.10	10.6	5.4	5.97
Name							
Aluminium (Al)		mg/L	6.0	3.91	7.26	12.2	12.2
Arsenic (As) mg/L 0.00020 0.00427 0.00560 0.00676 0.00678 Cadmium (Cd) mg/L 0.000010 0.0000705 0.0000481 0.0000569 0.0000507 Calcium (Ca) mg/L 0.00 16.6 12.9 15.6 15.4 Chromium (Cr) mg/L 0.0010 0.00106 0.00105 0.00143 0.00119 Cobalt (Co) mg/L 0.00020 0.00183 0.00120 0.00132 0.00129 Copper (Cu) mg/L 0.00020 0.0557 0.0461 0.0235 0.0226 Iron (Fe) mg/L 0.00020 0.0557 0.0461 0.0235 0.0226 Iron (Fe) mg/L 0.00009 0.001750 0.00126 0.00111 0.00108 Magnesium (Mg) mg/L 0.010 7.48 8.48 12.5 12.4 Manganese (Mn) mg/L 0.00030 0.218 0.215 0.206 0.202 Nickel (Ni) mg/L 0.0020 0.00639 0.00550 Potassium (K) mg/L 0.0020 0.00639 0.00555 0.00561 0.00550 Potassium (K) mg/L 0.0020 0.00639 0.00525 0.00561 0.00550  Potassium (K) mg/L 0.0020 0.0472 0.0372 0.028 0.0552  Total Organic Carbon by Combustion Total Organic Carbon mg/L 0.50 69.9 48.8 6.83 127  Total Suspended Solids Total Parene mg/L 0.00050 0.00050 0.00050 N/A N/A  Benzene mg/L 0.00050 0.00050 0.00050 N/A N/A  Toluene mg/L 0.00050 0.00050 0.00050 N/A N/A  Ethyl Benzene mg/L 0.00050 0.00050 0.00050 N/A N/A  F1 (C6-C10) mg/L 0.25 0.11 0.10 N/A N/A  F3 (C16-C34) mg/L 0.25 1.65 1.64 N/A N/A  F3 (C16-C34) mg/L 0.25 0.61 0.51 N/A N/A							
Cadmium (Cd)         mg/L         0.000010         0.0000705         0.0000569         0.0000507           Calcium (Ca)         mg/L         0.10         16.6         12.9         15.6         15.4           Chromium (Cr)         mg/L         0.0010         0.00106         0.00105         0.00143         0.00119           Cobalt (Co)         mg/L         0.00020         0.00183         0.00120         0.00132         0.00129           Copper (Cu)         mg/L         0.00020         0.0557         0.0461         0.0235         0.0226           Iron (Fe)         mg/L         0.010         2.33         3.25         2.12         2.09           Lead (Pb)         mg/L         0.000090         0.001750         0.00126         0.00111         0.00108           Magnesium (Mg)         mg/L         0.010         7.48         8.48         12.5         12.4           Manganese (Mn)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.0020         0.00472         0.0372         0.028	, ,						
Calcium (Ca)         mg/L         0.10         16.6         12.9         15.6         15.4           Chromium (Cr)         mg/L         0.0010         0.00106         0.00105         0.00143         0.00119           Cobalt (Co)         mg/L         0.00020         0.00183         0.00120         0.00132         0.00129           Copper (Cu)         mg/L         0.00020         0.0557         0.0461         0.0235         0.0226           Iron (Fe)         mg/L         0.010         2.33         3.25         2.12         2.09           Lead (Pb)         mg/L         0.00090         0.001750         0.00126         0.00111         0.00108           Magnesium (Mg)         mg/L         0.010         7.48         8.48         12.5         12.4           Manganese (Mn)         mg/L         0.0010         7.48         8.48         12.5         12.4           Manganese (Mn)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.0020         0.0472         0.0372	. ,						
Chromium (Cr)         mg/L         0.0010         0.00106         0.00105         0.00143         0.00119           Cobalt (Co)         mg/L         0.00020         0.00183         0.00120         0.00132         0.00129           Copper (Cu)         mg/L         0.00020         0.0557         0.0461         0.0235         0.0226           Iron (Fe)         mg/L         0.010         2.33         3.25         2.12         2.09           Lead (Pb)         mg/L         0.00090         0.001750         0.00126         0.00111         0.00108           Magnesium (Mg)         mg/L         0.0000         0.001750         0.00126         0.00111         0.00108           Magnesium (Mg)         mg/L         0.0003         0.218         0.215         0.206         0.202           Magnesium (Mg)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Magnesium (Mg)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.0020         20.5         22.5         25.8         25           Sodium (Na)         mg/L         0.030         61.9         82.8							
Cobalt (Co)         mg/L         0.00020         0.00183         0.00120         0.00132         0.00129           Copper (Cu)         mg/L         0.00020         0.0557         0.0461         0.0235         0.0226           Iron (Fe)         mg/L         0.010         2.33         3.25         2.12         2.09           Lead (Pb)         mg/L         0.000090         0.001750         0.00126         0.00111         0.00108           Magnesium (Mg)         mg/L         0.010         7.48         8.48         12.5         12.4           Manganese (Mn)         mg/L         0.00030         0.218         0.215         0.206         0.202           Nickel (Ni)         mg/L         0.0020         0.0639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.020         20.5         22.5         25.8         25           Sodium (Na)         mg/L         0.030         61.9         82.8         103         101           Zinc (Zn)         mg/L         0.0020         0.0472         0.0372         0.028         0.0252           Total Organic Carbon by Combustion         mg/L         0.50         69.9         48.8         6.83	, ,						
Copper (Cu)         mg/L         0.00020         0.0557         0.0461         0.0235         0.0226           Iron (Fe)         mg/L         0.010         2.33         3.25         2.12         2.09           Lead (Pb)         mg/L         0.000090         0.001750         0.00126         0.00111         0.00108           Magnesium (Mg)         mg/L         0.010         7.48         8.48         12.5         12.4           Manganese (Mn)         mg/L         0.00030         0.218         0.215         0.206         0.202           Nickel (Ni)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.020         20.5         22.5         25.8         25           Sodium (Na)         mg/L         0.030         61.9         82.8         103         101           Zinc (Zn)         mg/L         0.0020         0.0472         0.0372         0.028         0.0252           Total Organic Carbon by Combustion         mg/L         0.50         69.9         48.8         6.83         127           Total Organic Carbon by Combustion         mg/L         0.50         69.9         48.8         6	. ,						
Iron (Fe)	· · ·						
Lead (Pb)         mg/L         0.000090         0.001750         0.00126         0.00111         0.00108           Magnesium (Mg)         mg/L         0.010         7.48         8.48         12.5         12.4           Manganese (Mn)         mg/L         0.00030         0.218         0.215         0.206         0.202           Nickel (Ni)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.020         20.5         22.5         25.8         25           Sodium (Na)         mg/L         0.030         61.9         82.8         103         101           Zinc (Zn)         mg/L         0.0020         0.0472         0.0372         0.028         0.0252           Total Organic Carbon by Combustion           Total Organic Carbon         mg/L         0.50         69.9         48.8         6.83         127           Total Suspended Solids           Total Suspended Solids         mg/L         13         89.9         33.5         177.0         208.0           pH         pH         pH Units         0.10         7.75         7.73         8.43         8.01 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>							
Magnesium (Mg)         mg/L         0.010         7.48         8.48         12.5         12.4           Manganese (Mn)         mg/L         0.00030         0.218         0.215         0.206         0.202           Nickel (Ni)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.020         20.5         22.5         25.8         25           Sodium (Na)         mg/L         0.030         61.9         82.8         103         101           Zinc (Zn)         mg/L         0.0020         0.0472         0.0372         0.028         0.0252           Total Organic Carbon by Combustion           Total Organic Carbon by Combustion         mg/L         0.50         69.9         48.8         6.83         127           Total Suspended Solids           Total Suspended Solids         mg/L         13         89.9         33.5         177.0         208.0           pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene mg/L		_					
Manganese (Mn)         mg/L         0.00030         0.218         0.215         0.206         0.202           Nickel (Ni)         mg/L         0.0020         0.00639         0.00525         0.00561         0.00550           Potassium (K)         mg/L         0.020         20.5         22.5         25.8         25           Sodium (Na)         mg/L         0.030         61.9         82.8         103         101           Zinc (Zn)         mg/L         0.0020         0.0472         0.0372         0.028         0.0252           Total Organic Carbon by Combustion           Total Organic Carbon         mg/L         0.50         69.9         48.8         6.83         127           Total Suspended Solids           Total Suspended Solids         mg/L         13         89.9         33.5         177.0         208.0           pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L		_					
Potassium (K)         mg/L         0.020         20.5         22.5         25.8         25           Sodium (Na)         mg/L         0.030         61.9         82.8         103         101           Zinc (Zn)         mg/L         0.0020         0.0472         0.0372         0.028         0.0252           Total Organic Carbon by Combustion           Total Suspended Solids           Total Suspended Solids           Total Suspended Solids           mg/L         13         89.9         33.5         177.0         208.0           pH           pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           o-Xylene         mg/L         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.25         0.11							
Sodium (Na)         mg/L         0.030         61.9         82.8         103         101           Zinc (Zn)         mg/L         0.0020         0.0472         0.0372         0.028         0.0252           Total Organic Carbon by Combustion           Total Suspended Solids           Total Suspended Solids           Total Suspended Solids           mg/L         13         89.9         33.5         177.0         208.0           pH           pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           o-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11 </td <td>. ,</td> <td>mg/L</td> <td>0.0020</td> <td></td> <td></td> <td></td> <td>0.00550</td>	. ,	mg/L	0.0020				0.00550
Zinc (Zn)         mg/L         0.0020         0.0472         0.0372         0.028         0.0252           Total Organic Carbon by Combustion           Total Organic Carbon         mg/L         0.50         69.9         48.8         6.83         127           Total Suspended Solids           pH         mg/L         13         89.9         33.5         177.0         208.0           pH         pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           o-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         0.61 <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td>		_					
Total Organic Carbon by Combustion           Total Organic Carbon         mg/L         0.50         69.9         48.8         6.83         127           Total Suspended Solids         mg/L         13         89.9         33.5         177.0         208.0           pH           pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           o-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         0.61         0.51         N/A         N/A							
Total Organic Carbon         mg/L         0.50         69.9         48.8         6.83         127           Total Suspended Solids         mg/L         13         89.9         33.5         177.0         208.0           pH           pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           o-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         1.65         1.64         N/A         N/A           F4 (C34-C50)         mg/L         0.25         0.61         0.51         N/A         N/A		mg/L	0.0020	0.0472	0.0372	0.028	0.0252
Total Suspended Solids           Total Suspended Solids         mg/L         13         89.9         33.5         177.0         208.0           pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           O-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         1.65         1.64         N/A         N/A           F4 (C34-C50)         mg/L         0.25         0.61         0.51         N/A         N/A		,	6.7				
Total Suspended Solids         mg/L         13         89.9         33.5         177.0         208.0           pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           O-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         1.65         1.64         N/A         N/A           F4 (C34-C50)         mg/L         0.25         0.61         0.51         N/A         N/A	<u> </u>	mg/L	0.50	69.9	48.8	6.83	127
pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           o-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         1.65         1.64         N/A         N/A           F4 (C34-C50)         mg/L         0.25         0.61         0.51         N/A         N/A		ma/I	12	90.0	22.5	177.0	200.0
pH         pH Units         0.10         7.75         7.73         8.43         8.01           Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           O-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         1.65         1.64         N/A         N/A           F4 (C34-C50)         mg/L         0.25         0.61         0.51         N/A         N/A		IIIg/L	13	69.9	33.5	1/7.0	208.0
Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           Toluene         mg/L         0.0010         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           o-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         1.65         1.64         N/A         N/A           F4 (C34-C50)         mg/L         0.25         0.61         0.51         N/A         N/A	•	nH Units	0.10	7.75	7 73	8 12	8 01
Toluene         mg/L         0.0010         0.0010         0.0010         N/A         N/A           Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           o-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         1.65         1.64         N/A         N/A           F4 (C34-C50)         mg/L         0.25         0.61         0.51         N/A         N/A							
Ethyl Benzene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           o-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         1.65         1.64         N/A         N/A           F4 (C34-C50)         mg/L         0.25         0.61         0.51         N/A         N/A							
o-Xylene         mg/L         0.00050         0.00050         0.00050         N/A         N/A           F1 (C6-C10)         mg/L         0.10         0.10         0.10         N/A         N/A           F2 (C10-C16)         mg/L         0.25         0.11         0.10         N/A         N/A           F3 (C16-C34)         mg/L         0.25         1.65         1.64         N/A         N/A           F4 (C34-C50)         mg/L         0.25         0.61         0.51         N/A         N/A							
F1 (C6-C10)     mg/L     0.10     0.10     0.10     N/A     N/A       F2 (C10-C16)     mg/L     0.25     0.11     0.10     N/A     N/A       F3 (C16-C34)     mg/L     0.25     1.65     1.64     N/A     N/A       F4 (C34-C50)     mg/L     0.25     0.61     0.51     N/A     N/A						-	
F2 (C10-C16)     mg/L     0.25     0.11     0.10     N/A     N/A       F3 (C16-C34)     mg/L     0.25     1.65     1.64     N/A     N/A       F4 (C34-C50)     mg/L     0.25     0.61     0.51     N/A     N/A		_					
F4 (C34-C50) mg/L 0.25 0.61 0.51 N/A N/A		_					
	F3 (C16-C34)	mg/L	0.25	1.65	1.64	N/A	N/A
Total Hydrocarbons (C6-C50) mg/L 0.44 2.37 2.14 N/A N/A							
	Total Hydrocarbons (C6-C50)	mg/L	0.44	2.37	2.14	N/A	N/A

ARV-5		i		20	20	
Parameter	Unit	DL	13-Jul-20	29-Jul-20	16-Sep-20	17-Sep-20
Alkalinity	Onic	DL	15-341-20	25-341-20	10-3cp-20	17-3CP-20
Bicarbonate (HCO3)	mg/L	1.2	71.4	82	59.7	58.3
Carbonate (CO3)	mg/L	0.60	0.60	0.60	<0.60	<0.60
Hydroxide (OH)	mg/L	0.34	0.34	0.34	<0.34	<0.34
Total (as CaCO3)	mg/L	1.0	58.5	67.2	48.9	47.8
Ammonia by Colour						
Total (as N)	mg/L	0.20	0.072	0.25	0.018	0.018
Biochemical Oxygen Demand (BOD)						
Biochemical Oxygen Demand	mg/L	6.0	2.3	2	<2.0	<2.0
Carbonaceous BOD	/	6.0	2		2.7	2
BOD Carbonaceous	mg/L	6.0	2	2	3.7	2
Chloride in Water by IC	(1	10	474	242	270	250
Chloride (Cl)	mg/L	10	174	243	379	359
Conductivity Conductivity	umhos/cm	1.0	694	880	1350	1280
Fecal Coliforms	unnos/em	1.0	034	000	1550	1200
Fecal Coliforms	MPN/100mL	3	3260	10	<10	10
Hardness Calculated	WII IV TOOINE	3	3200	10	110	10
Hardness (as CaCO3)	mg/L	0.30	106	136	207	188
Mercury Total	U, =					
Mercury (Hg)	mg/L	0.00020	0.0000050	0.0000050	0.0000050	<0.0000050
Nitrate in Water by IC	J.					
Nitrate (as N)	mg/L	0.020	0.020	0.040	<0.10	<0.040
Nitrate + Nitrite						
Nitrate and Nitrite as N	mg/L	0.070	0.070	0.070	<0.11	<0.070
Nitrite in Water by IC						
Nitrite (as N)	mg/L	0.010	0.010	0.020	<0.050	<0.020
Oil & Grease - Gravimetric						
Oil and Grease	mg/L	5.0	5.0	5.0	<5.0	<5.0
Phenol						
Phenols	mg/L	0.0010	0.0010	0.0010	<0.0010	<0.0010
Phosphorus, Total						
Phosphorus (P)	mg/L	0.010	0.159	0.0773	0.0477	0.0134
Sulfate in Water by IC	/	6.0	6.25	5.74	C.F.	0.00
Sulfate (SO4)	mg/L	6.0	6.25	5.71	6.5	8.82
Total Metals by ICP-MS  Aluminium (AI)	mg/L	0.0050	0.148	0.0414	0.156	0.0132
Arsenic (As)	mg/L	0.00020	0.00080	0.00078	0.00058	0.00132
Cadmium (Cd)	mg/L	0.000010	0.0000063	0.000075	0.000081	<0.00001
Calcium (Ca)	mg/L	0.10	19.4	22.8	29.1	27.6
Chromium (Cr)	mg/L	0.0010	0.00072	0.00025	0.00067	0.00021
Cobalt (Co)	mg/L	0.00020	0.00041	0.00027	0.00030	0.00013
Copper (Cu)	mg/L	0.00020	0.00074	0.00056	0.00087	<0.00050
Iron (Fe)	mg/L	0.010	3.69	2.16	3.11	1.28
Lead (Pb)	mg/L	0.000090	0.000311	0.00118	0.00024	<0.000050
Magnesium (Mg)	mg/L	0.010	13.9	19.2	32.6	28.8
Manganese (Mn)	mg/L	0.00030	0.350	0.148	0.112	0.074
Nickel (Ni)	mg/L	0.0020	0.00078	0.00112	0.0008	<0.00050
Potassium (K)	mg/L	0.020	6.18	7.53	8.79	7.42
Sodium (Na)	mg/L	0.030	89.2	127	191	167
Zinc (Zn)	mg/L	0.0020	0.0209	0.0150	0.0082	0.0120
Total Organic Carbon by Combustion						
Total Organic Carbon	mg/L	0.50	11	12.9	7.13	6.97
Total Suspended Solids		43	0.1	0.0	FC 2	76.7
Total Suspended Solids	mg/L	13	9.1	8.9	50.3	70.7
<b>рН</b> рН	pH Units	0.10	7.38	7.55	7.65	7.46
рп Benzene	mg/L	0.00050	0.00050	0.00050	<0.00050	<0.00050
Toluene	mg/L	0.00030	0.00030	0.00030	<0.00030	<0.00030
Ethyl Benzene	mg/L	0.0010	0.0010	0.0010	<0.0010	<0.0010
o-Xylene	mg/L	0.00050	0.00050	0.00050	<0.00050	<0.00050
F1 (C6-C10)	mg/L	0.10	0.10	0.10	<0.10	<0.10
F2 (C10-C16)	mg/L	0.25	0.10	0.10	<0.10	<0.10
F3 (C16-C34)	mg/L	0.25	0.25	0.25	<0.25	<0.25
F4 (C34-C50)	mg/L	0.25	0.25	0.25	<0.25	<0.25
Total Hydrocarbons (C6-C50)	mg/L	0.44	0.38	0.38	<0.38	<0.38

				20	020			
Parameter	Unit	DL	13-Jul-20	29-Jul-20	16-Sep-20	17-Sep-20		
Alkalinity								
Bicarbonate (HCO3)	mg/L	1.2	121	70.9	73.8	101		
Carbonate (CO3)	mg/L	0.60	0.60	0.60	<0.60	<0.60		
Hydroxide (OH)	mg/L	0.34	0.34	0.34	<0.34	<0.34		
Total (as CaCO3)	mg/L	1.0	99.1	58.1	60.5	82.9		
Ammonia by Colour  Total (as N)	ma/l	0.20	0.052	0.063	0.102	0.102		
Biochemical Oxygen Demand (BOD)	mg/L	0.20	0.053	0.062	0.103	0.102		
Biochemical Oxygen Demand	mg/L	6.0	3.0	2.0	<2.0	<2.0		
Carbonaceous BOD	1118/ 2	0.0	3.0	2.0	12.0	12.0		
BOD Carbonaceous	mg/L	6.0	2.0	2.0	2.7	<2.0		
Chloride in Water by IC	g,							
Chloride (CI)	mg/L	10	132	132	316	122		
Conductivity								
Conductivity	umhos/cm	1.0	604	548	1140	560		
Fecal Coliforms								
Fecal Coliforms	MPN/100mL	3	10	10	<10	<10		
Hardness Calculated								
Hardness (as CaCO3)	mg/L	0.30	145	133	449	123		
Mercury Total								
Mercury (Hg)	mg/L	0.00020	0.0000050	0.0000050	<0.0000050	<0.0000050		
Nitrate in Water by IC								
Nitrate (as N)	mg/L	0.40	0.020	0.026	<0.040	<0.020		
Nitrate + Nitrite	(1	0.45	0.070	0.070	-0.070	-0.070		
Nitrate and Nitrite as N	mg/L	0.45	0.070	0.070	<0.070	<0.070		
Nitrite in Water by IC  Nitrite (as N)	ma/l	0.20	0.010	0.010	<0.020	<0.010		
Oil & Grease - Gravimetric	mg/L	0.20	0.010	0.010	<0.020	<0.010		
Oil and Grease	mg/L	5.0	5.0	5.0	<5.0	<5.0		
Phenol	IIIg/ L	5.0	5.0	5.0	<b>\3.0</b>	<b>\3.0</b>		
Phenols	mg/L	0.0010	0.0026	0.0011	<0.0010	<0.0010		
Phosphorus, Total	8/ =	0.0000	0.0020	0.0022	0.0020	0.0020		
Phosphorus (P)	mg/L	0.010	0.0324	0.0441	0.0584	0.0428		
Sulfate in Water by IC	g,							
Sulfate (SO4)	mg/L	6.0	0.30	1.38	<0.60	0.87		
Total Metals by ICP-MS								
Aluminium (Al)	mg/L	0.0050	0.0934	0.0384	0.0604	0.291		
Arsenic (As)	mg/L	0.00020	0.00083	0.00051	0.00057	0.00054		
Cadmium (Cd)	mg/L	0.000010	0.000011	0.0000182	0.0000188	0.0000119		
Calcium (Ca)	mg/L	0.10	40	38.5	162	31.9		
Chromium (Cr)	mg/L	0.0010	0.00075	0.00034	0.00063	0.00090		
Cobalt (Co)	mg/L	0.00020	0.00233	0.00094	0.00482	0.00083		
Copper (Cu)	mg/L	0.00020	0.00059	0.00050	0.00103	0.00133		
Iron (Fe)	mg/L	0.010	18.1	9.18	11.2	8.43		
Lead (Pb)	mg/L	0.000090	0.000290	0.000291	0.000178	0.000484		
Magnesium (Mg) Manganese (Mn)	mg/L	0.010	2.08	9.04 1.16	10.8 1.66	10.5 0.853		
Nickel (Ni)	mg/L mg/L	0.00030	0.00122	0.00085	0.00185	0.853		
Potassium (K)	mg/L	0.0020	6.36	4.26	9.84	5.16		
Sodium (Na)	mg/L	0.020	53	49.3	17.5	58.8		
Zinc (Zn)	mg/L	0.0020	0.081	0.0322	0.0125	0.0709		
Total Organic Carbon by Combustion	8/ -							
Total Organic Carbon	mg/L	0.50	10.4	6.54	6.75	7.21		
Total Suspended Solids								
Total Suspended Solids	mg/L	13	44.3	17.7	37.5	29.3		
рН								
рН	pH Units	0.10	7.09	7.01	7.28	7.55		
Benzene	mg/L	0.00050	0.00050	0.00050	<0.00050	<0.00050		
Toluene	mg/L	0.0010	0.0010	0.0010	<0.0010	<0.0010		
Ethyl Benzene	mg/L	0.00050	0.00050	0.00050	<0.00050	<0.00050		
o-Xylene	mg/L	0.00050	0.00050	0.00050	<0.00050	<0.00050		
F1 (C6-C10)	mg/L	0.10	0.10	0.10	<0.10	<0.10		
F2 (C10-C16)	mg/L	0.25	0.10	0.10	<0.10	<0.10		
F3 (C16-C34)	mg/L	0.25	0.25	0.25	<0.25	<0.25		
F4 (C34-C50)	mg/L	0.25	0.25	0.25	<0.25	<0.25		
Total Hydrocarbons (C6-C50)	mg/L	0.44	0.38	0.38	<0.38	<0.38		

## ANNUAL REPORT FOR THE HAMLET OF ARVIAT

## Appendix F: CIRNAC Inspection Report

The CIRNAC inspection report was not received by CGS.