

ANNUAL REPORT FOR THE HAMLET OF WHALE COVE

YEAR BEING REPORTED: 2017

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License # 3BM-WHA1520 issued to the Hamlet of Whale Cove.

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

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

Month Reported	Quantity of Water Obtained from all sources (litres)	Quantity of Sewage Waste Discharged (Estimated)
January	1,517,400	Same
February	1,424,200	Same
March	1,360,000	Same
April	1,717,500	Same
May	1,669,100	Same
June	1,778,700	Same
July	1,450,500	Same
August	1,389,200	Same
September	1,355,600	Same
October	1,740,400	Same
November	1,430,300	Same
December	1,852,500	Same
ANNUAL TOTAL	18,685,400	Same

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

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- iv. a summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities;
- Batteries were separated into sea cans.



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- v. a list of unauthorized discharges and summary of follow-up action taken;
 - No spills documented.
- vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year.

 - No abandonment and restoration work took place in 2017 and no work is planned for 2018.
- vii. a summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;

 - none
- viii. any other details on water use or waste disposal requested by the Board by November 1st of the year being reported.
 - No details requested.
- ix. updates or revisions to the approved Operation and Maintenance Plans.

 - No updates or revisions to the Operation and Maintenance Plans in 2017.

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

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

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

-The INAC Inspection took place on July 11, 2017. A copy of the inspection report has not been received from INAC.

List of Appendixes:

**ANNUAL REPORT
FOR THE HAMLET OF WHALE COVE 2015**

- Appendix A: WHA-3 Effluent Quality Limits – 1 page**
Appendix B: Certificate of Analysis June 8, 2017 – 11 pages
Appendix C: Certificate of Analysis July 12, 2017 – 11 pages
Appendix D: Certificate of Analysis August 28, 2017– 11 pages
Appendix E: Certificate of Analysis September 22, 2017 – 11 pages
Appendix F: Hazardous Materials Spill Database, Whale Cove 2017 – 1 page
Appendix G: Summary of Sampling Results 2017 – 3 pages

2017 Whale Cove Monitoring Stations and Sampling Parameters for Water License No. 3BM-WHA1520

Part D, Item 4; WHA-3 Effluent Quality Limits

Parameter	Maximum concentration of any grab sample	WHA-3			
		08-Jun-17	12-Jul-17	28-Aug-17	22-Sep-17
BOD ₅	120 mg/L	77	33	39	18.5
Total Suspended Solids	180 mg/L	46	36	68	22
Fecal Coliforms	1x10 ⁶ CFU/100mL	24200	15500	12000	19900
Oil + Grease	no visible sheen	14.5	5	5	5.6
pH	between 6 and 9	7.37	8.1	7.6	7.5



Hamlet of Whale Cove
ATTN: IAN COPLAND
PO Box 120
Whale Cove NU X0C 0J0

Date Received: 09-JUN-17
Report Date: 20-JUN-17 15:35 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: L1939568
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Craig Biddell, B.Sc.Ag
Account Manager

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1939568-1 WHA-4							
Sampled By: Don Voisey on 08-JUN-17							
Matrix: Sewage/Waste Water							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO ₃)	234		1.2	mg/L		13-JUN-17	
Alkalinity, Carbonate							
Carbonate (CO ₃)	6.72		0.60	mg/L		13-JUN-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		13-JUN-17	
Alkalinity, Total (as CaCO₃)							
Alkalinity, Total (as CaCO ₃)	203		1.0	mg/L		09-JUN-17	R3744174
Ammonia by colour							
Ammonia, Total (as N)	0.105		0.010	mg/L		13-JUN-17	R3746844
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	10.3		2.0	mg/L		10-JUN-17	R3749233
Carbonaceous BOD							
BOD Carbonaceous	6.4		2.0	mg/L		10-JUN-17	R3749233
Chloride in Water by IC							
Chloride (Cl)	123		0.50	mg/L		09-JUN-17	R3746804
Conductivity							
Conductivity	819		1.0	umhos/cm		09-JUN-17	R3744174
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	<10		10	MPN/100mL		09-JUN-17	R3744950
Hardness Calculated							
Hardness (as CaCO ₃)	185	HTC	0.25	mg/L		14-JUN-17	
Mercury Total							
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	12-JUN-17	13-JUN-17	R3748291
Nitrate in Water by IC							
Nitrate (as N)	0.028		0.020	mg/L		09-JUN-17	R3746804
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		14-JUN-17	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-JUN-17	R3746804
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		15-JUN-17	R3748500
Phenol (4AAP)							
Phenols (4AAP)	0.0039		0.0010	mg/L		20-JUN-17	R3751084
Phosphorus, Total							
Phosphorus (P)-Total	4.19		0.10	mg/L		16-JUN-17	R3750563
Sulfate in Water by IC							
Sulfate (SO ₄)	30.9		0.30	mg/L		09-JUN-17	R3746804
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0236		0.0050	mg/L	13-JUN-17	13-JUN-17	R3746932
Arsenic (As)-Total	0.00836		0.00020	mg/L	13-JUN-17	13-JUN-17	R3746932
Cadmium (Cd)-Total	0.000012		0.000010	mg/L	13-JUN-17	13-JUN-17	R3746932
Calcium (Ca)-Total	52.3		0.10	mg/L	13-JUN-17	13-JUN-17	R3746932
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	13-JUN-17	13-JUN-17	R3746932
Cobalt (Co)-Total	0.00078		0.00020	mg/L	13-JUN-17	13-JUN-17	R3746932
Copper (Cu)-Total	0.00176		0.00020	mg/L	13-JUN-17	13-JUN-17	R3746932
Iron (Fe)-Total	0.913		0.010	mg/L	13-JUN-17	13-JUN-17	R3746932
Lead (Pb)-Total	0.000100		0.000090	mg/L	13-JUN-17	13-JUN-17	R3746932
Magnesium (Mg)-Total	13.2		0.010	mg/L	13-JUN-17	13-JUN-17	R3746932
Manganese (Mn)-Total	0.114		0.00030	mg/L	13-JUN-17	13-JUN-17	R3746932
Nickel (Ni)-Total	0.0036		0.0020	mg/L	13-JUN-17	13-JUN-17	R3746932

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1939568-1 WHA-4 Sampled By: Don Voisey on 08-JUN-17 Matrix: Sewage/Waste Water Total Metals by ICP-MS Potassium (K)-Total Sodium (Na)-Total Zinc (Zn)-Total Total Organic Carbon by Combustion Total Organic Carbon Total Suspended Solids Total Suspended Solids pH pH	28.6 88.7 0.0023 20.2 17.0 8.48		0.020 0.030 0.0020 0.50 5.0 0.10	mg/L mg/L mg/L mg/L mg/L pH units	13-JUN-17 13-JUN-17 13-JUN-17 15-JUN-17 14-JUN-17 09-JUN-17	13-JUN-17 13-JUN-17 13-JUN-17 15-JUN-17 14-JUN-17 09-JUN-17	R3746932 R3746932 R3746932 R3749003 R3748228 R3744174
L1939568-2 WHA-3 Sampled By: Don Voisey on 08-JUN-17 Matrix: Sewage/Waste Water Nunavut WW Group 1 Alkalinity, Bicarbonate Bicarbonate (HCO3) Alkalinity, Carbonate Carbonate (CO3) Alkalinity, Hydroxide Hydroxide (OH) Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3) Ammonia by colour Ammonia, Total (as N) Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand Carbonaceous BOD BOD Carbonaceous Chloride in Water by IC Chloride (Cl) Conductivity Conductivity Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms Hardness Calculated Hardness (as CaCO3) Mercury Total Mercury (Hg)-Total Nitrate in Water by IC Nitrate (as N) Nitrate+Nitrite Nitrate and Nitrite as N Nitrite in Water by IC Nitrite (as N) Oil & Grease - Gravimetric Oil and Grease Phenol (4AAP) Phenols (4AAP) Phosphorus, Total Phosphorus (P)-Total Sulfate in Water by IC Sulfate (SO4)	338 <0.60 <0.34 277 43.8 77 69 79.9 900 >24200 130 0.0000131 <0.040 <0.070 <0.020 14.5 0.0641 5.80 38.0		1.2 0.60 0.34 1.0 1.0 20 20 1.0 1.0 10 0.25 0.0000050 0.040 0.070 0.020 5.0 0.0010 0.10 0.60	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L umhos/cm MPN/100mL mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	12-JUN-17	14-JUN-17 14-JUN-17 14-JUN-17 13-JUN-17 13-JUN-17 10-JUN-17 10-JUN-17 09-JUN-17 09-JUN-17 09-JUN-17 14-JUN-17 09-JUN-17 14-JUN-17 09-JUN-17 15-JUN-17 20-JUN-17 16-JUN-17 09-JUN-17	R3746992 R3746844 R3749233 R3749233 R3746804 R3744174 R3744950 R3748291 R3746804 R3746804 R3746804 R3748500 R3751084 R3750563 R3746804

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1939568-2 WHA-3 Sampled By: Don Voisey on 08-JUN-17 Matrix: Sewage/Waste Water							
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.125		0.0050	mg/L	13-JUN-17	13-JUN-17	R3746932
Arsenic (As)-Total	0.00169		0.00020	mg/L	13-JUN-17	13-JUN-17	R3746932
Cadmium (Cd)-Total	0.000066		0.000010	mg/L	13-JUN-17	13-JUN-17	R3746932
Calcium (Ca)-Total	37.3		0.10	mg/L	13-JUN-17	13-JUN-17	R3746932
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	13-JUN-17	13-JUN-17	R3746932
Cobalt (Co)-Total	0.00170		0.00020	mg/L	13-JUN-17	13-JUN-17	R3746932
Copper (Cu)-Total	0.0708		0.00020	mg/L	13-JUN-17	13-JUN-17	R3746932
Iron (Fe)-Total	0.479		0.010	mg/L	13-JUN-17	13-JUN-17	R3746932
Lead (Pb)-Total	0.000956		0.000090	mg/L	13-JUN-17	13-JUN-17	R3746932
Magnesium (Mg)-Total	8.85		0.010	mg/L	13-JUN-17	13-JUN-17	R3746932
Manganese (Mn)-Total	0.115		0.00030	mg/L	13-JUN-17	13-JUN-17	R3746932
Nickel (Ni)-Total	0.0044		0.0020	mg/L	13-JUN-17	13-JUN-17	R3746932
Potassium (K)-Total	20.5		0.020	mg/L	13-JUN-17	13-JUN-17	R3746932
Sodium (Na)-Total	63.5		0.030	mg/L	13-JUN-17	13-JUN-17	R3746932
Zinc (Zn)-Total	0.0521		0.0020	mg/L	13-JUN-17	13-JUN-17	R3746932
Total Organic Carbon by Combustion							
Total Organic Carbon	82.8		2.5	mg/L		16-JUN-17	R3750131
Total Suspended Solids							
Total Suspended Solids	46.0		5.0	mg/L		14-JUN-17	R3748228
pH							
pH	7.37		0.10	pH units		09-JUN-17	R3744174
L1939568-3 WHA-2 Sampled By: Don Voisey on 08-JUN-17 Matrix: Sewage/Waste Water							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		14-JUN-17	R3748482
Toluene	<0.0010		0.0010	mg/L		14-JUN-17	R3748482
Ethyl benzene	<0.00050		0.00050	mg/L		14-JUN-17	R3748482
o-Xylene	<0.00050		0.00050	mg/L		14-JUN-17	R3748482
m+p-Xylenes	<0.00040		0.00040	mg/L		14-JUN-17	R3748482
F1 (C6-C10)	<0.10		0.10	mg/L		14-JUN-17	R3748482
Surrogate: 4-Bromofluorobenzene (SS)	98.8		70-130	%		14-JUN-17	R3748482
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	13-JUN-17	14-JUN-17	R3747836
F3 (C16-C34)	<0.25		0.25	mg/L	13-JUN-17	14-JUN-17	R3747836
F4 (C34-C50)	<0.25		0.25	mg/L	13-JUN-17	14-JUN-17	R3747836
Surrogate: 2-Bromobenzotrifluoride	82.2		60-140	%	13-JUN-17	14-JUN-17	R3747836
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-JUN-17	
F2-Naphth	<0.10		0.10	mg/L		19-JUN-17	
F3-PAH	<0.25		0.25	mg/L		19-JUN-17	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-JUN-17	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		15-JUN-17	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	0.000123		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551
2-Methyl Naphthalene	0.000082		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551
Acenaphthene	<0.000020		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551
Acenaphthylene	0.000023		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1939568-3 WHA-2							
Sampled By: Don Voisey on 08-JUN-17							
Matrix: Sewage/Waste Water							
Polyaromatic Hydrocarbons (PAHs)							
Anthracene	<0.000010		0.000010	mg/L	13-JUN-17	17-JUN-17	R3750551
Acridine	<0.000020		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551
Benzo(a)anthracene	<0.000010		0.000010	mg/L	13-JUN-17	17-JUN-17	R3750551
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	13-JUN-17	17-JUN-17	R3750551
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	13-JUN-17	17-JUN-17	R3750551
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	13-JUN-17	17-JUN-17	R3750551
Chrysene	<0.000020		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	13-JUN-17	17-JUN-17	R3750551
Fluoranthene	<0.000020		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551
Fluorene	0.000023		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	13-JUN-17	17-JUN-17	R3750551
Naphthalene	0.000109		0.000050	mg/L	13-JUN-17	17-JUN-17	R3750551
Phenanthrene	<0.000050		0.000050	mg/L	13-JUN-17	17-JUN-17	R3750551
Pyrene	<0.000010		0.000010	mg/L	13-JUN-17	17-JUN-17	R3750551
Quinoline	0.000189		0.000020	mg/L	13-JUN-17	17-JUN-17	R3750551
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	13-JUN-17	17-JUN-17	R3750551
Surrogate: Acenaphthene d10	94.0		40-130	%	13-JUN-17	17-JUN-17	R3750551
Surrogate: Acridine d9	112.7		40-130	%	13-JUN-17	17-JUN-17	R3750551
Surrogate: Chrysene d12	69.0		40-130	%	13-JUN-17	17-JUN-17	R3750551
Surrogate: Naphthalene d8	97.0		40-130	%	13-JUN-17	17-JUN-17	R3750551
Surrogate: Phenanthrene d10	91.0		40-130	%	13-JUN-17	17-JUN-17	R3750551
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO ₃)	154		1.2	mg/L		14-JUN-17	
Alkalinity, Carbonate							
Carbonate (CO ₃)	<0.60		0.60	mg/L		14-JUN-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		14-JUN-17	
Alkalinity, Total (as CaCO₃)							
Alkalinity, Total (as CaCO ₃)	127		1.0	mg/L		13-JUN-17	R3746992
Ammonia by colour							
Ammonia, Total (as N)	0.99		0.10	mg/L		13-JUN-17	R3746844
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	8.4		2.0	mg/L		10-JUN-17	R3749233
Carbonaceous BOD							
BOD Carbonaceous	6.8		2.0	mg/L		10-JUN-17	R3749233
Chloride in Water by IC							
Chloride (Cl)	123		0.50	mg/L		09-JUN-17	R3746804
Conductivity							
Conductivity	769		1.0	umhos/cm		09-JUN-17	R3744174
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	5170		10	MPN/100mL		09-JUN-17	R3744950
Hardness Calculated							
Hardness (as CaCO ₃)	221	HTC	0.25	mg/L		14-JUN-17	
Mercury Total							
Mercury (Hg)-Total	0.0000058		0.0000050	mg/L	12-JUN-17	13-JUN-17	R3748291
Nitrate in Water by IC							
Nitrate (as N)	0.113		0.020	mg/L		09-JUN-17	R3746804
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.127		0.070	mg/L		14-JUN-17	
Nitrite in Water by IC							

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1939568-3	WHA-2							
Sampled By:	Don Voisey on 08-JUN-17							
Matrix:	Sewage/Waste Water							
Nitrite in Water by IC								
Nitrite (as N)	0.015			0.010	mg/L		09-JUN-17	R3746804
Oil & Grease - Gravimetric								
Oil and Grease	<5.0			5.0	mg/L		15-JUN-17	R3748500
Phenol (4AAP)								
Phenols (4AAP)	0.0057			0.0010	mg/L		20-JUN-17	R3751084
Phosphorus, Total								
Phosphorus (P)-Total	0.210			0.010	mg/L		16-JUN-17	R3750563
Sulfate in Water by IC								
Sulfate (SO4)	76.2			0.30	mg/L		09-JUN-17	R3746804
Total Metals by ICP-MS								
Aluminum (Al)-Total	0.0630			0.0050	mg/L	13-JUN-17	13-JUN-17	R3746932
Arsenic (As)-Total	0.00188			0.00020	mg/L	13-JUN-17	13-JUN-17	R3746932
Cadmium (Cd)-Total	0.000084			0.000010	mg/L	13-JUN-17	13-JUN-17	R3746932
Calcium (Ca)-Total	68.1			0.10	mg/L	13-JUN-17	13-JUN-17	R3746932
Chromium (Cr)-Total	<0.0010			0.0010	mg/L	13-JUN-17	13-JUN-17	R3746932
Cobalt (Co)-Total	0.00144			0.00020	mg/L	13-JUN-17	13-JUN-17	R3746932
Copper (Cu)-Total	0.00930			0.00020	mg/L	13-JUN-17	13-JUN-17	R3746932
Iron (Fe)-Total	2.24			0.010	mg/L	13-JUN-17	13-JUN-17	R3746932
Lead (Pb)-Total	0.00131			0.000090	mg/L	13-JUN-17	13-JUN-17	R3746932
Magnesium (Mg)-Total	12.3			0.010	mg/L	13-JUN-17	13-JUN-17	R3746932
Manganese (Mn)-Total	0.247			0.00030	mg/L	13-JUN-17	13-JUN-17	R3746932
Nickel (Ni)-Total	0.0066			0.0020	mg/L	13-JUN-17	13-JUN-17	R3746932
Potassium (K)-Total	9.92			0.020	mg/L	13-JUN-17	13-JUN-17	R3746932
Sodium (Na)-Total	63.1			0.030	mg/L	13-JUN-17	13-JUN-17	R3746932
Zinc (Zn)-Total	0.0540			0.0020	mg/L	13-JUN-17	13-JUN-17	R3746932
Total Organic Carbon by Combustion								
Total Organic Carbon	12.4			0.50	mg/L		15-JUN-17	R3749003
Total Suspended Solids								
Total Suspended Solids	12.0			5.0	mg/L		14-JUN-17	R3748228
pH								
pH	7.60			0.10	pH units		09-JUN-17	R3744174

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

Reference Information

Sample Parameter Qualifier Key:

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

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B
Samples are diluted and seeded, have TCMP added to inhibit nitrogenous demands, and then are incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B
Samples are diluted and seeded and then incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A
The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.			
C-TOC-HTC-WP	Water	Total Organic Carbon by Combustion	APHA 5310 B-WP
Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L
Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.			
In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.			
In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.			
In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.			

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

1. All extraction and analysis holding times were met.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene. 3. Linearity of gasoline response within 15% throughout the calibration range.			
Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges: 1. All extraction and analysis holding times were met. 2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average. 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors. 4. Linearity of diesel or motor oil response within 15% throughout the calibration range.			
F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511
Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.			
FC10-QT97-WP	Water	Fecal coliforms, 1:10 dilution by QT97	APHA 9223B QT97
Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Substrate Coliform Test". Fecal (thermotolerant) coliform bacteria are determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 44.5 – 0.2°C for 18 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0
Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.			
MET-T-L-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-TL
This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourimetrically.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
OG-GRAV-WP	Water	Oil & Grease - Gravimetric	EPA 1664 (modified)
Water samples are acidified and extracted with hexane; the hexane extract is collected in a pre-weighed vial. The solvent is evaporated and Total Oil & Grease is determined from the weight of the residue in the vial.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PAH,PANH-WP	Water	Polyaromatic Hydrocarbons (PAHs)	EPA SW 846/8270-GC/MS
Water is spiked with a surrogate spike mix and extracted using solvent extraction techniques. Analysis is performed by GC/MS in the selected ion monitoring (SIM) mode.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Total suspended solids in aqueous matrices is determined gravimetrically after drying the residue at 103 – 105°C.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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

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

mg/kg ww - 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.

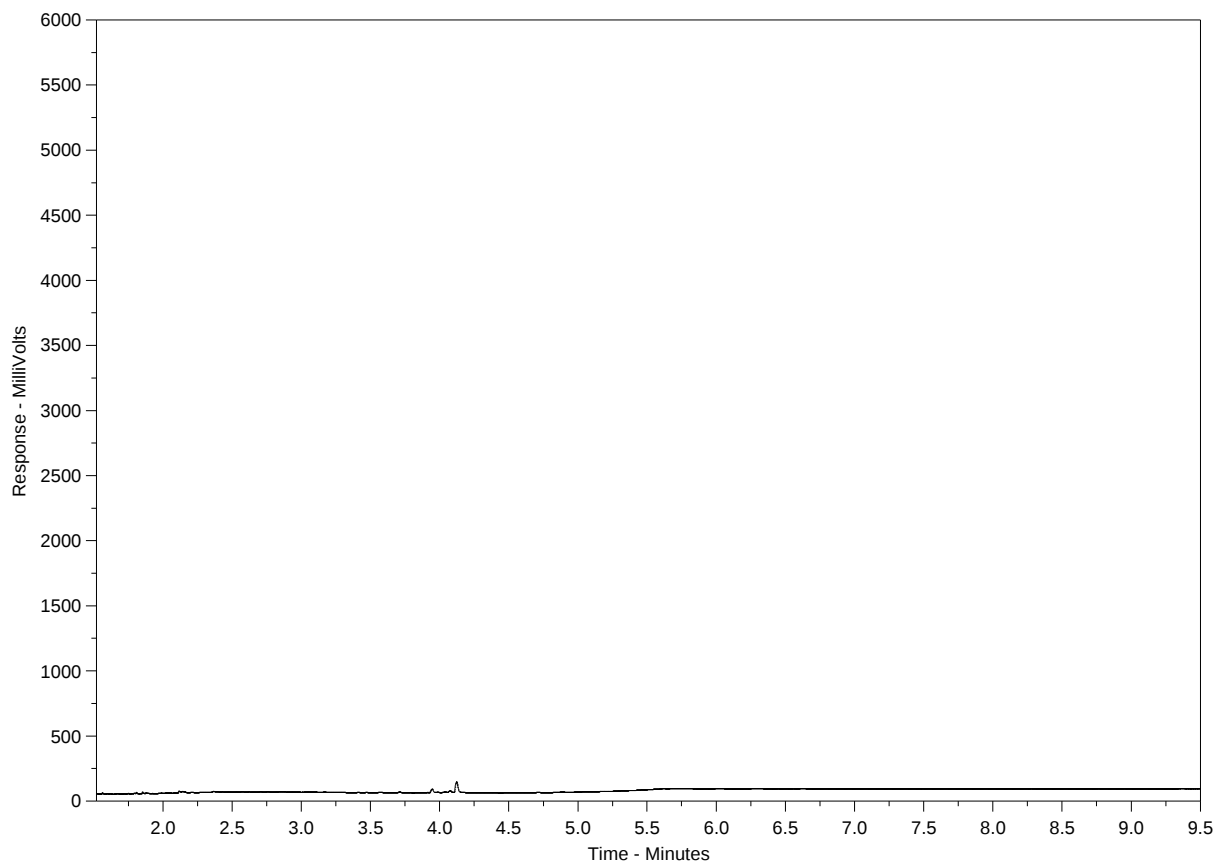
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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: L1939568-3
Client Sample ID: WHA-2



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

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

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

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

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



Canada Toll Free: 1 800 668 9878



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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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

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



Hamlet of Whale Cove
ATTN: PAUL VOISEY
PO Box 120
Whale Cove NU X0C 0J0

Date Received: 14-JUL-17
Report Date: 03-AUG-17 13:41 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: L1958848
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:



Hua Wo
Chemistry Laboratory Manager

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958848-1 WHA-4							
Sampled By: DV on 12-JUL-17 @ 09:15							
Matrix: WASTEWATER							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO ₃)	219		1.2	mg/L		19-JUL-17	
Alkalinity, Carbonate							
Carbonate (CO ₃)	<0.60		0.60	mg/L		19-JUL-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		19-JUL-17	
Alkalinity, Total (as CaCO₃)							
Alkalinity, Total (as CaCO ₃)	180		1.0	mg/L		15-JUL-17	R3776864
Ammonia by colour							
Ammonia, Total (as N)	0.055		0.010	mg/L		19-JUL-17	R3778206
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		15-JUL-17	R3779171
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		15-JUL-17	R3779171
Chloride in Water by IC							
Chloride (Cl)	43.2		0.50	mg/L		14-JUL-17	R3775969
Conductivity							
Conductivity	413		1.0	umhos/cm		15-JUL-17	R3776864
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	<10	PEHR	10	MPN/100mL		14-JUL-17	R3773109
Hardness Calculated							
Hardness (as CaCO ₃)	192	HTC	0.20	mg/L		19-JUL-17	
Mercury Total							
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	19-JUL-17	19-JUL-17	R3778219
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		14-JUL-17	R3775969
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		18-JUL-17	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		14-JUL-17	R3775969
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		21-JUL-17	R3779594
Phenol (4AAP)							
Phenols (4AAP)	0.0011		0.0010	mg/L		21-JUL-17	R3780437
Phosphorus, Total							
Phosphorus (P)-Total	0.390		0.010	mg/L		18-JUL-17	R3776714
Sulfate in Water by IC							
Sulfate (SO ₄)	12.2		0.30	mg/L		14-JUL-17	R3775969
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0117		0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311
Arsenic (As)-Total	0.00061		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Cadmium (Cd)-Total	0.0000107		0.0000050	mg/L	18-JUL-17	18-JUL-17	R3777311
Calcium (Ca)-Total	67.9		0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Chromium (Cr)-Total	0.00012		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Copper (Cu)-Total	0.00323		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311
Iron (Fe)-Total	0.220		0.010	mg/L	18-JUL-17	18-JUL-17	R3777311
Lead (Pb)-Total	<0.000050		0.000050	mg/L	18-JUL-17	18-JUL-17	R3777311
Magnesium (Mg)-Total	5.54		0.0050	mg/L	18-JUL-17	18-JUL-17	R3777311
Manganese (Mn)-Total	0.0401		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311
Nickel (Ni)-Total	0.00116		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958848-1	WHA-4							
Sampled By:	DV on 12-JUL-17 @ 09:15							
Matrix:	WASTEWATER							
Total Metals in Water by CRC ICPMS								
Potassium (K)-Total	1.75			0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Sodium (Na)-Total	25.6			0.050	mg/L	18-JUL-17	18-JUL-17	R3777311
Zinc (Zn)-Total	<0.0030			0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311
Total Organic Carbon by Combustion								
Total Organic Carbon	4.37			0.50	mg/L		23-JUL-17	R3780524
Total Suspended Solids								
Total Suspended Solids	<5.0			5.0	mg/L		17-JUL-17	R3775869
pH								
pH	7.70			0.10	pH units		15-JUL-17	R3776864
L1958848-2	WHA-3							
Sampled By:	DV on 12-JUL-17 @ 09:25							
Matrix:	WASTEWATER							
Nunavut WW Group 1								
Alkalinity, Bicarbonate								
Bicarbonate (HCO3)	330			1.2	mg/L		19-JUL-17	
Alkalinity, Carbonate								
Carbonate (CO3)	<0.60			0.60	mg/L		19-JUL-17	
Alkalinity, Hydroxide								
Hydroxide (OH)	<0.34			0.34	mg/L		19-JUL-17	
Alkalinity, Total (as CaCO3)								
Alkalinity, Total (as CaCO3)	271			1.0	mg/L		15-JUL-17	R3776864
Ammonia by colour								
Ammonia, Total (as N)	35.2			1.0	mg/L		19-JUL-17	R3778206
Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	33			20	mg/L		15-JUL-17	R3779171
Carbonaceous BOD								
BOD Carbonaceous	31.2			6.0	mg/L		15-JUL-17	R3779171
Chloride in Water by IC								
Chloride (Cl)	91.8			1.0	mg/L		14-JUL-17	R3775969
Conductivity								
Conductivity	877			1.0	umhos/cm		15-JUL-17	R3776864
Fecal coliforms, 1:10 dilution by QT97								
Fecal Coliforms	15500	PEHR		10	MPN/100mL		14-JUL-17	R3773109
Hardness Calculated								
Hardness (as CaCO3)	152	HTC		0.20	mg/L		19-JUL-17	
Mercury Total								
Mercury (Hg)-Total	0.0000071			0.0000050	mg/L	19-JUL-17	19-JUL-17	R3778219
Nitrate in Water by IC								
Nitrate (as N)	0.085			0.040	mg/L		14-JUL-17	R3775969
Nitrate+Nitrite								
Nitrate and Nitrite as N	0.085			0.070	mg/L		18-JUL-17	
Nitrite in Water by IC								
Nitrite (as N)	<0.020	DLM		0.020	mg/L		14-JUL-17	R3775969
Oil & Grease - Gravimetric								
Oil and Grease	<5.0			5.0	mg/L		21-JUL-17	R3779594
Phenol (4AAP)								
Phenols (4AAP)	0.0015			0.0010	mg/L		21-JUL-17	R3780437
Phosphorus, Total								
Phosphorus (P)-Total	6.07			0.10	mg/L		18-JUL-17	R3776714
Sulfate in Water by IC								
Sulfate (SO4)	56.6			0.60	mg/L		14-JUL-17	R3775969

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958848-2 WHA-3 Sampled By: DV on 12-JUL-17 @ 09:25 Matrix: WASTEWATER Total Metals in Water by CRC ICPMS Aluminum (Al)-Total Arsenic (As)-Total Cadmium (Cd)-Total Calcium (Ca)-Total Chromium (Cr)-Total Cobalt (Co)-Total Copper (Cu)-Total Iron (Fe)-Total Lead (Pb)-Total Magnesium (Mg)-Total Manganese (Mn)-Total Nickel (Ni)-Total Potassium (K)-Total Sodium (Na)-Total Zinc (Zn)-Total Total Organic Carbon by Combustion Total Organic Carbon Total Suspended Solids Total Suspended Solids pH pH	0.0492 0.00182 0.0000306 45.3 0.00033 0.00131 0.0304 0.249 0.000409 9.36 0.104 0.00421 22.8 69.0 0.0178 38.8 36 8.10		0.0030 0.00010 0.0000050 0.050 0.00010 0.00010 0.00050 0.010 0.000050 0.0050 0.00010 0.00050 0.050 0.050 0.0030 0.50 10 0.10	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L pH units	18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 17-JUL-17 15-JUL-17	18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 18-JUL-17 21-JUL-17 17-JUL-17 15-JUL-17	R3777311 R3777311 R3777311 R3777311 R3777311 R3777311 R3777311 R3777311 R3777311 R3777311 R3777311 R3777311 R3777311 R3777311 R3780243 R3775869 R3776864
L1958848-3 WHA-2 Sampled By: DV on 12-JUL-17 @ 08:55 Matrix: WASTEWATER BTEX plus F1-F4 BTX plus F1 by GCMS Benzene Toluene Ethyl benzene o-Xylene m+p-Xylenes F1 (C6-C10) Surrogate: 4-Bromofluorobenzene (SS) CCME PHC F2-F4 in Water F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Surrogate: 2-Bromobenzotrifluoride CCME Total Hydrocarbons F1-BTEX F2-Naphth F3-PAH Total Hydrocarbons (C6-C50) Sum of Xylene Isomer Concentrations Xylenes (Total) Polyaromatic Hydrocarbons (PAHs) 1-Methyl Naphthalene 2-Methyl Naphthalene Acenaphthene Acenaphthylene	<0.00050 <0.0010 <0.00050 <0.00050 <0.00040 <0.10 92.7 <0.10 <0.25 <0.25 116.0 <0.10 <0.10 <0.25 <0.38 <0.00064 <0.000020 <0.000020 <0.000020 <0.000020		0.00050 0.0010 0.00050 0.00050 0.00040 0.10 70-130 0.10 0.25 0.25 60-140 0.10 0.10 0.25 0.38 0.00064 0.000020 0.000020 0.000020 0.000020	mg/L mg/L mg/L mg/L mg/L mg/L % mg/L mg/L mg/L % mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 03-AUG-17 03-AUG-17 03-AUG-17 03-AUG-17 21-JUL-17 25-JUL-17 25-JUL-17 25-JUL-17 25-JUL-17	19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 19-JUL-17 02-AUG-17 02-AUG-17 02-AUG-17 02-AUG-17 03-AUG-17 03-AUG-17 03-AUG-17 03-AUG-17 21-JUL-17 25-JUL-17 25-JUL-17 25-JUL-17 25-JUL-17	R3777882 R3777882 R3777882 R3777882 R3777882 R3777882 R3777882 R3781771 R3781771 R3781771 R3781771 R3781771 R3781771 R3781771 R3781771 R3782469 R3782469 R3782469 R3782469

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958848-3 WHA-2							
Sampled By: DV on 12-JUL-17 @ 08:55							
Matrix: WASTEWATER							
Polyaromatic Hydrocarbons (PAHs)							
Anthracene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Acridine	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(a)anthracene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Chrysene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Fluoranthene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Fluorene	<0.000020		0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Naphthalene	<0.000050		0.000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Phenanthrene	<0.000050		0.000050	mg/L	25-JUL-17	25-JUL-17	R3782469
Pyrene	<0.000010		0.000010	mg/L	25-JUL-17	25-JUL-17	R3782469
Quinoline	0.000175	EMPC	0.000020	mg/L	25-JUL-17	25-JUL-17	R3782469
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	25-JUL-17	25-JUL-17	R3782469
Surrogate: Acenaphthene d10	87.1		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Acridine d9	96.7		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Chrysene d12	85.8		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Naphthalene d8	92.2		40-130	%	25-JUL-17	25-JUL-17	R3782469
Surrogate: Phenanthrene d10	80.3		40-130	%	25-JUL-17	25-JUL-17	R3782469
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	235		1.2	mg/L		19-JUL-17	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		19-JUL-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		19-JUL-17	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	192		1.0	mg/L		15-JUL-17	R3776864
Ammonia by colour							
Ammonia, Total (as N)	1.83		0.10	mg/L		19-JUL-17	R3778206
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	3.0		2.0	mg/L		15-JUL-17	R3779171
Carbonaceous BOD							
BOD Carbonaceous	2.3		2.0	mg/L		15-JUL-17	R3779171
Chloride in Water by IC							
Chloride (Cl)	157		1.0	mg/L		14-JUL-17	R3775969
Conductivity							
Conductivity	951		1.0	umhos/cm		15-JUL-17	R3776864
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	10	PEHR	10	MPN/100mL		14-JUL-17	R3773109
Hardness Calculated							
Hardness (as CaCO3)	291	HTC	0.20	mg/L		19-JUL-17	
Mercury Total							
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	19-JUL-17	19-JUL-17	R3778219
Nitrate in Water by IC							
Nitrate (as N)	0.054		0.040	mg/L		14-JUL-17	R3775969
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		18-JUL-17	
Nitrite in Water by IC							

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1958848-3	WHA-2							
Sampled By:	DV on 12-JUL-17 @ 08:55							
Matrix:	WASTEWATER							
Nitrite in Water by IC								
Nitrite (as N)	<0.020	DLM	0.020	mg/L		14-JUL-17	R3775969	
Oil & Grease - Gravimetric								
Oil and Grease	<5.0		5.0	mg/L		21-JUL-17	R3779594	
Phenol (4AAP)								
Phenols (4AAP)	0.0021		0.0010	mg/L		21-JUL-17	R3780437	
Phosphorus, Total								
Phosphorus (P)-Total	0.109		0.010	mg/L		18-JUL-17	R3776714	
Sulfate in Water by IC								
Sulfate (SO4)	73.7		0.60	mg/L		14-JUL-17	R3775969	
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total	0.0099		0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311	
Arsenic (As)-Total	0.00238		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311	
Cadmium (Cd)-Total	0.0000199		0.0000050	mg/L	18-JUL-17	18-JUL-17	R3777311	
Calcium (Ca)-Total	90.3		0.050	mg/L	18-JUL-17	18-JUL-17	R3777311	
Chromium (Cr)-Total	0.00051		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311	
Cobalt (Co)-Total	0.00115		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311	
Copper (Cu)-Total	0.00222		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311	
Iron (Fe)-Total	1.71		0.010	mg/L	18-JUL-17	18-JUL-17	R3777311	
Lead (Pb)-Total	0.000326		0.000050	mg/L	18-JUL-17	18-JUL-17	R3777311	
Magnesium (Mg)-Total	15.8		0.0050	mg/L	18-JUL-17	18-JUL-17	R3777311	
Manganese (Mn)-Total	0.246		0.00010	mg/L	18-JUL-17	18-JUL-17	R3777311	
Nickel (Ni)-Total	0.00588		0.00050	mg/L	18-JUL-17	18-JUL-17	R3777311	
Potassium (K)-Total	14.6		0.050	mg/L	18-JUL-17	18-JUL-17	R3777311	
Sodium (Na)-Total	79.7		0.050	mg/L	18-JUL-17	18-JUL-17	R3777311	
Zinc (Zn)-Total	0.0122		0.0030	mg/L	18-JUL-17	18-JUL-17	R3777311	
Total Organic Carbon by Combustion								
Total Organic Carbon	12.8		0.50	mg/L		21-JUL-17	R3780243	
Total Suspended Solids								
Total Suspended Solids	9.0		5.0	mg/L		17-JUL-17	R3775869	
pH								
pH	7.79		0.10	pH units		15-JUL-17	R3776864	

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
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 CO ₃ ²⁻ /L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO ₃ ⁻ /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 CaCO ₃)	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 HCO ₃ ⁻ and H ₂ CO ₃ 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 transferred 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 CO ₂ which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L
Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.			
In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.			
In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.			
In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range: 1. All extraction and analysis holding times were met. 2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene. 3. Linearity of gasoline response within 15% throughout the calibration range. Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges: 1. All extraction and analysis holding times were met. 2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average. 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors. 4. Linearity of diesel or motor oil response within 15% throughout the calibration range.			
F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511
Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.			
FC10-QT97-WP	Water	Fecal coliforms, 1:10 dilution by QT97	APHA 9223B QT97
Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Substrate Coliform Test". Fecal (thermotolerant) coliform bacteria are determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 44.5 – 0.2°C for 18 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0
Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.			
MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod.)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
OG-GRAV-WP	Water	Oil & Grease - Gravimetric	EPA 1664 (modified)
Water samples are acidified and extracted with hexane; the hexane extract is collected in a pre-weighed vial. The solvent is evaporated and Total Oil & Grease is determined from the weight of the residue in the vial.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.			
PAH,PANH-WP	Water	Polyaromatic Hydrocarbons (PAHs)	EPA SW 846/8270-GC/MS
Water is spiked with a surrogate spike mix and extracted using solvent extraction techniques. Analysis is performed by GC/MS in the selected ion monitoring (SIM) mode.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			

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 aqueous matrices is determined gravimetrically after drying the residue at 103 105°C.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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

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

mg/kg ww - 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.

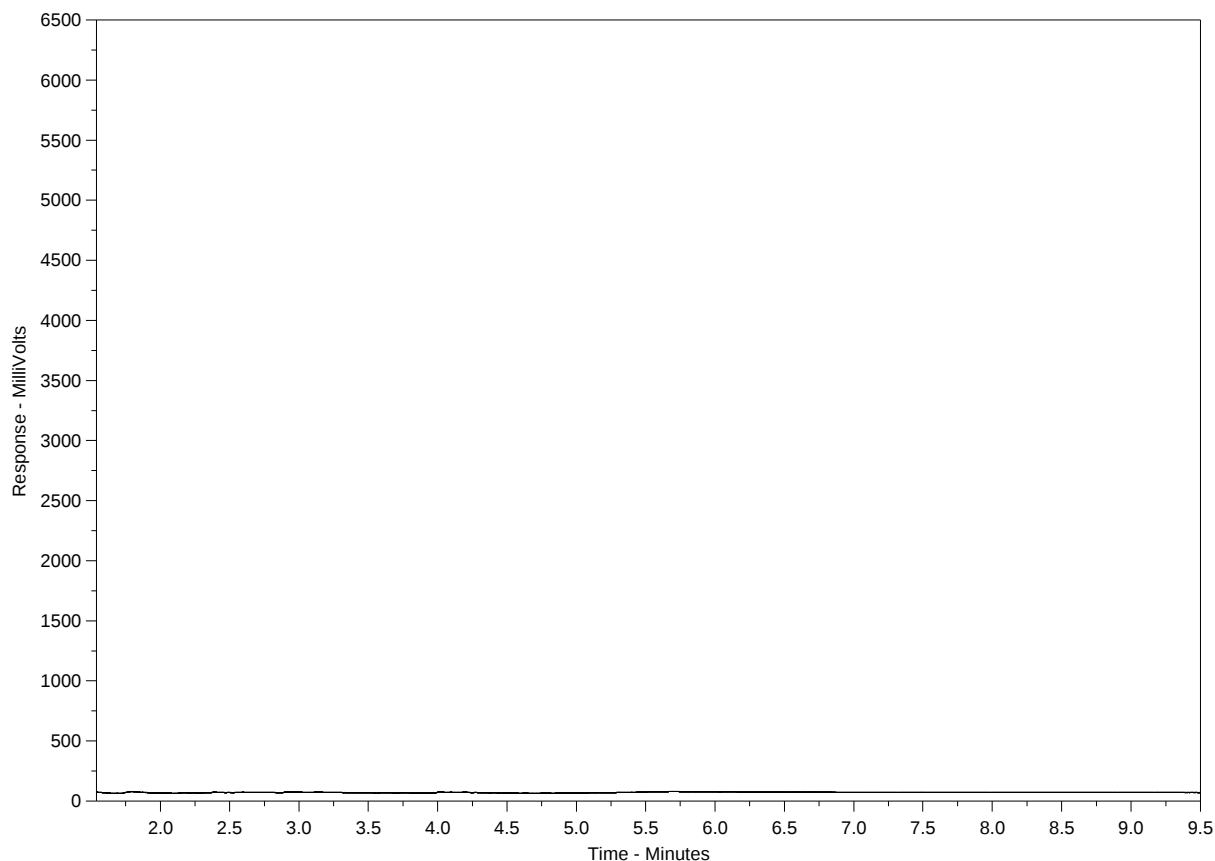
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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: L1958848-3
Client Sample ID: WHA-2



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

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

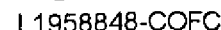
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

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



Canada Toll Free: 1 800 668 9878



COC Number: 15 - 571764

Pac

Page 1 of 1
L958848

Report To Contact and company name below will appear on the final report		Report Format / Distribution Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL) Quality Control (QC) Report with Report ☒ YES ☐ NO ☐ Compare Results to Criteria on Report - provide details below if box checked Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX		Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply 4 day [P4] ☐ 3 day [P3] ☐ 2 day [P2] ☐ 1 Business day [E1] ☐ Same Day, Weekend or Statutory holiday [E0] ☐ Date and Time Required for all E&P TATs: For tests that can not be performed according to the service level selected, you will be contacted.	
Company: Hamlet of Whale Cove Contact: Tan Cephad Phone: 867-896-9961 Company address below will appear on the final report Street: PO Box 120 City/Province: Whale Cove, NU Postal Code: X0C 0T0		Email 1 or Fax: Saco@whalecove.ca Email 2: mlustay@gov.nu.ca Email 3:		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below Routine BOD Metals Nutrients Oil + Grease x2 Phenols Mercury BSTX-F1 x3 F2-F4 PAH Number of Containers	
Invoice To Same as Report To ☒ YES ☐ NO Copy of Invoice with Report ☒ YES ☐ NO Company: Contact:		Invoice Distribution Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX Email 1 or Fax: Email 2: Email 3:			
Project Information ALS Account # / Quote #: W10623 Job #: PO / AFE: LSD:		Oil and Gas Required Fields (client use) AFE/Cost Center: PO#: Major/Minor Code: Routing Code: Requisitioner: Location:			
ALS Lab Work Order # (lab use only)		ALS Contact: Craig Riddell Sampler: Don V			
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	
	WHA-4	12-07-17	09:15 AM	Waste water	9
	WHA-3	12-07-17	09:35 AM	Waste water	9
	WHA-2	12-07-17	08:55 AM	Waste water	14
Drinking Water (DW) Samples¹ (client use) Are samples taken from a Regulated DW System? ☐ YES ☒ NO Are samples for human drinking water use? ☐ YES ☒ NO		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only) Nonavid-WW-GRPI BSTX-F1-F4, PAH		SAMPLE CONDITION AS RECEIVED (lab use only) Frozen ☐ SIF Observations Yes ☐ No ☐ Ice Packs ☒ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐ Cooling Initiated ☒ INITIAL COOLER TEMPERATURES °C: 12.4°C FINAL COOLER TEMPERATURES °C:	
SHIPMENT RELEASE (client use) Released by: Don V Date: June 12/17 Time: 9:00		INITIAL SHIPMENT RECEPTION (lab use only) Received by: AG Date: July 14/17 Time: 12:35		FINAL SHIPMENT RECEPTION (lab use only) Received by: Date: Time:	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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

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

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FROM



Hamlet of Whale Cove
ATTN: IAN COPELAND
PO Box 120
Whale Cove NU X0C 0J0

Date Received: 31-AUG-17
Report Date: 13-SEP-17 12:57 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: L1984293
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.]

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1984293-1 WHA-4							
Sampled By: CLIENT on 28-AUG-17 @ 15:00							
Matrix: WASTEWATER							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO ₃)	302		1.2	mg/L		01-SEP-17	
Alkalinity, Carbonate							
Carbonate (CO ₃)	<0.60		0.60	mg/L		01-SEP-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-17	
Alkalinity, Total (as CaCO₃)							
Alkalinity, Total (as CaCO ₃)	248		1.0	mg/L		31-AUG-17	R3816718
Ammonia by colour							
Ammonia, Total (as N)	0.021		0.010	mg/L		08-SEP-17	R3822830
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0	BODQ	2.0	mg/L		31-AUG-17	R3820502
Carbonaceous BOD							
BOD Carbonaceous	<2.0	BODQ	2.0	mg/L		31-AUG-17	R3820502
Chloride in Water by IC							
Chloride (Cl)	95.9		1.0	mg/L		31-AUG-17	R3818525
Conductivity							
Conductivity	845		1.0	umhos/cm		31-AUG-17	R3816718
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	<10	PEHR	10	MPN/100mL		31-AUG-17	R3816611
Hardness Calculated							
Hardness (as CaCO ₃)	355	HTC	0.20	mg/L		06-SEP-17	
Mercury Total							
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	01-SEP-17	05-SEP-17	R3820950
Nitrate in Water by IC							
Nitrate (as N)	<0.040	DLM	0.040	mg/L		31-AUG-17	R3818525
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		05-SEP-17	
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		31-AUG-17	R3818525
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		11-SEP-17	R3823430
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		05-SEP-17	R3820191
Phosphorus, Total							
Phosphorus (P)-Total	0.301		0.010	mg/L		01-SEP-17	R3816753
Sulfate in Water by IC							
Sulfate (SO ₄)	122		0.60	mg/L		31-AUG-17	R3818525
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.159		0.0030	mg/L	01-SEP-17	05-SEP-17	R3820268
Arsenic (As)-Total	0.00104		0.00010	mg/L	01-SEP-17	05-SEP-17	R3820268
Cadmium (Cd)-Total	0.0000163		0.0000050	mg/L	01-SEP-17	05-SEP-17	R3820268
Calcium (Ca)-Total	119		0.050	mg/L	01-SEP-17	05-SEP-17	R3820268
Chromium (Cr)-Total	0.00051		0.00010	mg/L	01-SEP-17	05-SEP-17	R3820268
Cobalt (Co)-Total	0.00030		0.00010	mg/L	01-SEP-17	05-SEP-17	R3820268
Copper (Cu)-Total	0.00341		0.00050	mg/L	01-SEP-17	05-SEP-17	R3820268
Iron (Fe)-Total	0.739		0.010	mg/L	01-SEP-17	05-SEP-17	R3820268
Lead (Pb)-Total	0.000129		0.000050	mg/L	01-SEP-17	05-SEP-17	R3820268
Magnesium (Mg)-Total	13.9		0.0050	mg/L	01-SEP-17	05-SEP-17	R3820268
Manganese (Mn)-Total	0.0465		0.00010	mg/L	01-SEP-17	05-SEP-17	R3820268
Nickel (Ni)-Total	0.00224		0.00050	mg/L	01-SEP-17	05-SEP-17	R3820268

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1984293-1	WHA-4							
Sampled By:	CLIENT on 28-AUG-17 @ 15:00							
Matrix:	WASTEWATER							
Total Metals in Water by CRC ICPMS								
Potassium (K)-Total		7.39		0.050	mg/L	01-SEP-17	05-SEP-17	R3820268
Sodium (Na)-Total		74.1		0.050	mg/L	01-SEP-17	05-SEP-17	R3820268
Zinc (Zn)-Total		0.0055		0.0030	mg/L	01-SEP-17	05-SEP-17	R3820268
Total Organic Carbon by Combustion								
Total Organic Carbon		7.51		0.50	mg/L		05-SEP-17	R3820396
Total Suspended Solids								
Total Suspended Solids		<5.0		5.0	mg/L		01-SEP-17	R3819039
pH								
pH		7.95		0.10	pH units		31-AUG-17	R3816718
L1984293-2	WHA-3							
Sampled By:	CLIENT on 28-AUG-17 @ 15:00							
Matrix:	WASTEWATER							
Nunavut WW Group 1								
Alkalinity, Bicarbonate								
Bicarbonate (HCO3)		252		1.2	mg/L		01-SEP-17	
Alkalinity, Carbonate								
Carbonate (CO3)		<0.60		0.60	mg/L		01-SEP-17	
Alkalinity, Hydroxide								
Hydroxide (OH)		<0.34		0.34	mg/L		01-SEP-17	
Alkalinity, Total (as CaCO3)								
Alkalinity, Total (as CaCO3)		207		1.0	mg/L		31-AUG-17	R3816718
Ammonia by colour								
Ammonia, Total (as N)		20.9		1.0	mg/L		12-SEP-17	R3826833
Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand		39	BODQ	20	mg/L		31-AUG-17	R3820502
Carbonaceous BOD								
BOD Carbonaceous		11.2	BODQ	6.0	mg/L		31-AUG-17	R3820502
Chloride in Water by IC								
Chloride (Cl)		99.7		1.0	mg/L		31-AUG-17	R3818525
Conductivity								
Conductivity		774		1.0	umhos/cm		31-AUG-17	R3816718
Fecal coliforms, 1:10 dilution by QT97								
Fecal Coliforms		12000	PEHR	10	MPN/100mL		31-AUG-17	R3816611
Hardness Calculated								
Hardness (as CaCO3)		164	HTC	0.20	mg/L		06-SEP-17	
Mercury Total								
Mercury (Hg)-Total		<0.000025		0.000025	mg/L	01-SEP-17	05-SEP-17	R3820950
Nitrate in Water by IC								
Nitrate (as N)		0.287	DLM	0.040	mg/L		31-AUG-17	R3818525
Nitrate+Nitrite								
Nitrate and Nitrite as N		0.766		0.070	mg/L		05-SEP-17	
Nitrite in Water by IC								
Nitrite (as N)		0.480		0.020	mg/L		31-AUG-17	R3818525
Oil & Grease - Gravimetric								
Oil and Grease		<5.0		5.0	mg/L		11-SEP-17	R3823430
Phenol (4AAP)								
Phenols (4AAP)		0.0016		0.0010	mg/L		05-SEP-17	R3820191
Phosphorus, Total								
Phosphorus (P)-Total		7.88		0.20	mg/L		01-SEP-17	R3816753
Sulfate in Water by IC								
Sulfate (SO4)		50.1		0.60	mg/L		31-AUG-17	R3818525

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1984293-2 WHA-3 Sampled By: CLIENT on 28-AUG-17 @ 15:00 Matrix: WASTEWATER Total Metals in Water by CRC ICPMS Aluminum (Al)-Total Arsenic (As)-Total Cadmium (Cd)-Total Calcium (Ca)-Total Chromium (Cr)-Total Cobalt (Co)-Total Copper (Cu)-Total Iron (Fe)-Total Lead (Pb)-Total Magnesium (Mg)-Total Manganese (Mn)-Total Nickel (Ni)-Total Potassium (K)-Total Sodium (Na)-Total Zinc (Zn)-Total Total Organic Carbon by Combustion Total Organic Carbon Total Suspended Solids Total Suspended Solids pH pH	0.140 0.00184 0.0000393 48.6 0.00049 0.00119 0.0251 0.484 0.000503 10.3 0.141 0.00505 24.0 77.7 0.0408 62.0 68 7.60		0.0030 0.00010 0.0000050 0.050 0.00010 0.00010 0.00050 0.010 0.000050 0.0050 0.00010 0.00050 0.050 0.050 0.0030 5.0 10 0.10	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L pH units	01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17 01-SEP-17	05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 05-SEP-17 01-SEP-17 31-AUG-17	R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820268 R3820396 R3819039 R3816718
L1984293-3 WHA-2 Sampled By: CLIENT on 28-AUG-17 @ 15:00 Matrix: WASTEWATER BTEX plus F1-F4 BTX plus F1 by GCMS Benzene Toluene Ethyl benzene o-Xylene m+p-Xylenes F1 (C6-C10) Surrogate: 4-Bromofluorobenzene (SS) CCME PHC F2-F4 in Water F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Surrogate: 2-Bromobenzotrifluoride CCME Total Hydrocarbons F1-BTEX F2-Naphth F3-PAH Total Hydrocarbons (C6-C50) Sum of Xylene Isomer Concentrations Xylenes (Total) Polyaromatic Hydrocarbons (PAHs) 1-Methyl Naphthalene 2-Methyl Naphthalene Acenaphthene Acenaphthylene	<0.00050 <0.0010 <0.00050 <0.00050 <0.00050 <0.10 101.3 <0.10 <0.25 <0.25 86.0 <0.10 <0.10 <0.25 <0.38 <0.00064 <0.000020 <0.000020 <0.000020 <0.000020		0.00050 0.0010 0.00050 0.00050 0.00040 0.10 70-130 0.10 0.25 0.25 60-140 0.10 0.10 0.25 0.38 0.00064 0.000020 0.000020 0.000020 0.000020	mg/L mg/L mg/L mg/L mg/L mg/L % mg/L mg/L mg/L % mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	02-SEP-17 02-SEP-17 02-SEP-17 02-SEP-17 02-SEP-17 02-SEP-17 02-SEP-17 07-SEP-17 07-SEP-17 07-SEP-17 07-SEP-17 07-SEP-17 12-SEP-17 12-SEP-17 12-SEP-17 12-SEP-17 05-SEP-17 08-SEP-17 08-SEP-17 08-SEP-17 08-SEP-17	02-SEP-17 02-SEP-17 02-SEP-17 02-SEP-17 02-SEP-17 02-SEP-17 02-SEP-17 07-SEP-17 07-SEP-17 07-SEP-17 07-SEP-17 07-SEP-17 12-SEP-17 12-SEP-17 12-SEP-17 12-SEP-17 05-SEP-17 11-SEP-17 11-SEP-17 11-SEP-17 11-SEP-17	R3818931 R3818931 R3818931 R3818931 R3818931 R3818931 R3818931 R3822936 R3822936 R3822936 R3822936 R3822936 R3818931 R3818931 R3818931 R3818931 R3824212 R3824212 R3824212 R3824212

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1984293-3 WHA-2							
Sampled By: CLIENT on 28-AUG-17 @ 15:00							
Matrix: WASTEWATER							
Polyaromatic Hydrocarbons (PAHs)							
Anthracene	<0.000010		0.000010	mg/L	08-SEP-17	11-SEP-17	R3824212
Acridine	<0.000020		0.000020	mg/L	08-SEP-17	11-SEP-17	R3824212
Benzo(a)anthracene	<0.000010		0.000010	mg/L	08-SEP-17	11-SEP-17	R3824212
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	08-SEP-17	11-SEP-17	R3824212
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	08-SEP-17	11-SEP-17	R3824212
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	08-SEP-17	11-SEP-17	R3824212
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	08-SEP-17	11-SEP-17	R3824212
Chrysene	<0.000020		0.000020	mg/L	08-SEP-17	11-SEP-17	R3824212
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	08-SEP-17	11-SEP-17	R3824212
Fluoranthene	<0.000020		0.000020	mg/L	08-SEP-17	11-SEP-17	R3824212
Fluorene	<0.000020		0.000020	mg/L	08-SEP-17	11-SEP-17	R3824212
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	08-SEP-17	11-SEP-17	R3824212
Naphthalene	<0.00010	DLM	0.00010	mg/L	08-SEP-17	11-SEP-17	R3824212
Phenanthrene	<0.000050		0.000050	mg/L	08-SEP-17	11-SEP-17	R3824212
Pyrene	<0.000010		0.000010	mg/L	08-SEP-17	11-SEP-17	R3824212
Quinoline	0.000081		0.000020	mg/L	08-SEP-17	11-SEP-17	R3824212
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	08-SEP-17	11-SEP-17	R3824212
Surrogate: Acenaphthene d10	88.4		40-130	%	08-SEP-17	11-SEP-17	R3824212
Surrogate: Acridine d9	107.6		40-130	%	08-SEP-17	11-SEP-17	R3824212
Surrogate: Chrysene d12	90.1		40-130	%	08-SEP-17	11-SEP-17	R3824212
Surrogate: Naphthalene d8	84.9		40-130	%	08-SEP-17	11-SEP-17	R3824212
Surrogate: Phenanthrene d10	90.5		40-130	%	08-SEP-17	11-SEP-17	R3824212
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	258		1.2	mg/L		01-SEP-17	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-17	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	212		1.0	mg/L		31-AUG-17	R3816718
Ammonia by colour							
Ammonia, Total (as N)	1.85		0.10	mg/L		08-SEP-17	R3822830
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	2.0	BODQ	2.0	mg/L		31-AUG-17	R3820502
Carbonaceous BOD							
BOD Carbonaceous	<2.0	BODQ	2.0	mg/L		31-AUG-17	R3820502
Chloride in Water by IC							
Chloride (Cl)	184		1.0	mg/L		31-AUG-17	R3818525
Conductivity							
Conductivity	964		1.0	umhos/cm		31-AUG-17	R3816718
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	20	PEHR	10	MPN/100mL		31-AUG-17	R3816611
Hardness Calculated							
Hardness (as CaCO3)	316	HTC	0.20	mg/L		06-SEP-17	
Mercury Total							
Mercury (Hg)-Total	0.0000064		0.0000050	mg/L	01-SEP-17	05-SEP-17	R3820950
Nitrate in Water by IC							
Nitrate (as N)	0.043		0.040	mg/L		31-AUG-17	R3818525
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		05-SEP-17	
Nitrite in Water by IC							

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1984293-3	WHA-2							
Sampled By:	CLIENT on 28-AUG-17 @ 15:00							
Matrix:	WASTEWATER							
Nitrite in Water by IC								
Nitrite (as N)		<0.020	DLM	0.020	mg/L		31-AUG-17	R3818525
Oil & Grease - Gravimetric								
Oil and Grease		<5.0		5.0	mg/L		11-SEP-17	R3823430
Phenol (4AAP)								
Phenols (4AAP)		0.0014		0.0010	mg/L		05-SEP-17	R3820191
Phosphorus, Total								
Phosphorus (P)-Total		0.114		0.010	mg/L		01-SEP-17	R3816753
Sulfate in Water by IC								
Sulfate (SO4)		77.9		0.60	mg/L		31-AUG-17	R3818525
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.0143		0.0030	mg/L	01-SEP-17	05-SEP-17	R3820268
Arsenic (As)-Total		0.00208		0.00010	mg/L	01-SEP-17	05-SEP-17	R3820268
Cadmium (Cd)-Total		0.0000155		0.0000050	mg/L	01-SEP-17	05-SEP-17	R3820268
Calcium (Ca)-Total		94.6		0.050	mg/L	01-SEP-17	05-SEP-17	R3820268
Chromium (Cr)-Total		0.00034		0.00010	mg/L	01-SEP-17	05-SEP-17	R3820268
Cobalt (Co)-Total		0.00087		0.00010	mg/L	01-SEP-17	05-SEP-17	R3820268
Copper (Cu)-Total		0.00156		0.00050	mg/L	01-SEP-17	05-SEP-17	R3820268
Iron (Fe)-Total		2.16		0.010	mg/L	01-SEP-17	05-SEP-17	R3820268
Lead (Pb)-Total		0.000362		0.000050	mg/L	01-SEP-17	05-SEP-17	R3820268
Magnesium (Mg)-Total		19.4		0.0050	mg/L	01-SEP-17	05-SEP-17	R3820268
Manganese (Mn)-Total		0.251		0.00010	mg/L	01-SEP-17	05-SEP-17	R3820268
Nickel (Ni)-Total		0.00441		0.00050	mg/L	01-SEP-17	05-SEP-17	R3820268
Potassium (K)-Total		12.8		0.050	mg/L	01-SEP-17	05-SEP-17	R3820268
Sodium (Na)-Total		99.4		0.050	mg/L	01-SEP-17	05-SEP-17	R3820268
Zinc (Zn)-Total		0.0116		0.0030	mg/L	01-SEP-17	05-SEP-17	R3820268
Total Organic Carbon by Combustion								
Total Organic Carbon		8.85		0.50	mg/L		05-SEP-17	R3820396
Total Suspended Solids								
Total Suspended Solids		18		10	mg/L		01-SEP-17	R3819039
pH								
pH		7.83		0.10	pH units		31-AUG-17	R3816718

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

Reference Information

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	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-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B
Samples are diluted and seeded, have TCMP added to inhibit nitrogenous demands, and then are incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B
Samples are diluted and seeded and then incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A
The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transferred 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

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3. Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range: 1. All extraction and analysis holding times were met. 2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene. 3. Linearity of gasoline response within 15% throughout the calibration range. Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges: 1. All extraction and analysis holding times were met. 2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average. 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors. 4. Linearity of diesel or motor oil response within 15% throughout the calibration range.			
F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511
Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.			
FC10-QT97-WP	Water	Fecal coliforms, 1:10 dilution by QT97	APHA 9223B QT97
Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Substrate Coliform Test". Fecal (thermotolerant) coliform bacteria are determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 44.5 – 0.2°C for 18 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0
Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.			
MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod.)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
OG-GRAV-WP	Water	Oil & Grease - Gravimetric	EPA 1664 (modified)
Water samples are acidified and extracted with hexane; the hexane extract is collected in a pre-weighed vial. The solvent is evaporated and Total Oil & Grease is determined from the weight of the residue in the vial.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.			
PAH,PANH-WP	Water	Polyaromatic Hydrocarbons (PAHs)	EPA SW 846/8270-GC/MS
Water is spiked with a surrogate spike mix and extracted using solvent extraction techniques. Analysis is performed by GC/MS in the selected ion monitoring (SIM) mode.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aqueous matrices is determined gravimetrically after drying the residue at 103 – 105°C.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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

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

mg/kg ww - 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.

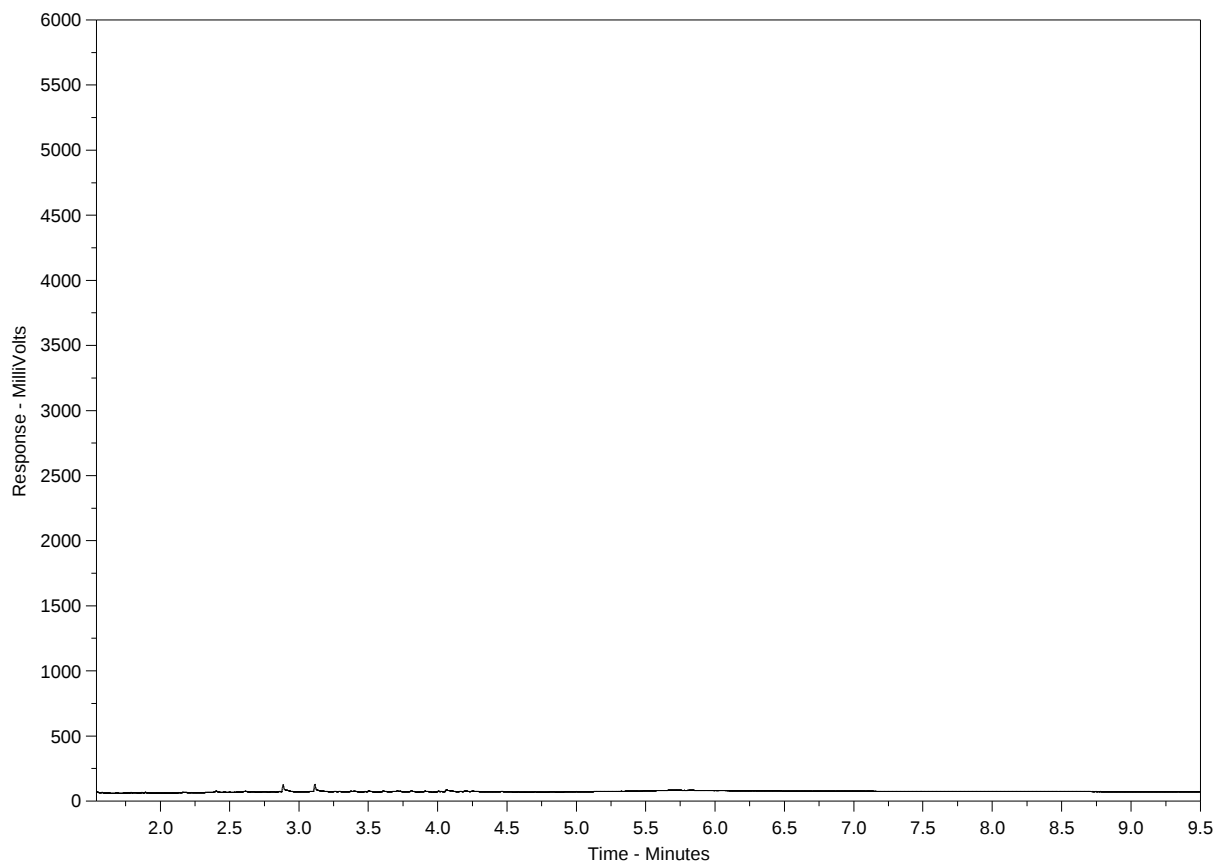
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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: L1984293-3
Client Sample ID: WHA-2



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

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

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

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

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



ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L1984293-COFC

COC Number: 15 - 571765

Page 1 of 1
L1984293

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply	
Company: <u>Hamlet of Whale Cove</u>		Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)		Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply	
Contact: <u>San Copland</u>		Quality Control (QC) Report with Report ☐ YES ☐ NO		4 day [P4] ☐	
Phone: <u>867-896-994</u>		☐ Compare Results to Criteria on Report - provide details below if box checked		3 day [P3] ☐	
Company address below will appear on the final report		Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX		2 day [P2] ☐	
Street: <u>PO Box 120</u>		Email 1 or Fax: <u>saop@whalecove.ca</u>		1 Business day [E1] ☐	
City/Province: <u>Whale Cove, NU</u>		Email 2: <u>mlusty@gov.nu.ca</u>		Same Day, Weekend or Statutory holiday [E0] ☐	
Postal Code: <u>X0C 0T0</u>		Email 3:		Date and Time Required for all E&P TATs: dd-mm-yy hh:mm	
Invoice To: Same as Report To ☒ YES ☐ NO		Invoice Distribution: ☐ EMAIL ☒ MAIL ☐ FAX		For tests that can not be performed according to the service level selected, you will be contacted.	
Copy of Invoice with Report ☒ YES ☐ NO		Email 1 or Fax:		Analysis Request	
Company:		Email 2:		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FIP) below	
Contact:		Email 3:		Number of Containers	
Project Information		Oil and Gas Required Fields (client use)			
ALS Account # / Quote #: <u>W10623</u>		AFE/Cost Center: PO#			
Job #:		Major/Minor Code: Routing Code:			
PO / AFE:		Requisitioner:			
LSD:		Location:			
ALS Lab Work Order # (lab use only)		ALS Contact: <u>Craig Riddell</u>		Sampler:	
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	
	WHA-4	28/08/17	3:00 pm	wastewater	
	WHA-3	28/08/17	3:00 pm	wastewater	
	WHA-2	28/08/17	3:00 pm	wastewater	
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)		SAMPLE CONDITION AS RECEIVED (lab use only)	
Are samples taken from a Regulated DW System? ☐ YES ☒ NO		Nunavut-WW - GRP1		Frozen ☐ SIF Observations Yes ☐ No ☐	
Are samples for human drinking water use? ☐ YES ☒ NO		BTX, FI-F4, PAH		Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐	
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		Cooling initiated ☐	
Released by: <u>San Copland</u>	Date: <u>28/08/17</u>	Time: <u>3:00 pm</u>	Received by: <u>CA</u>	Date: <u>31-8-17</u>	Time: <u>8:13</u>
FINAL SHIPMENT RECEPTION (lab use only)		INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C	
				15.2	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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

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

OCTOBER 2015 FRONT



Hamlet of Whale Cove
ATTN: PAUL VOISEY
PO Box 120
Whale Cove NU X0C 0J0

Date Received: 22-SEP-17
Report Date: 05-OCT-17 08:48 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: L1996042
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
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1996042-1 WHA-4							
Sampled By: CLIENT							
Matrix: WASTEWATER							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO ₃)	186		1.2	mg/L		26-SEP-17	
Alkalinity, Carbonate							
Carbonate (CO ₃)	<0.60		0.60	mg/L		26-SEP-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-SEP-17	
Alkalinity, Total (as CaCO₃)							
Alkalinity, Total (as CaCO ₃)	153		1.0	mg/L		23-SEP-17	R3838028
Ammonia by colour							
Ammonia, Total (as N)	0.017		0.010	mg/L		25-SEP-17	R3837944
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		23-SEP-17	R3840939
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		23-SEP-17	R3840939
Chloride in Water by IC							
Chloride (Cl)	56.0		0.50	mg/L		23-SEP-17	R3837599
Conductivity							
Conductivity	562		1.0	umhos/cm		23-SEP-17	R3838028
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	30		10	MPN/100mL		22-SEP-17	R3837119
Hardness Calculated							
Hardness (as CaCO ₃)	171	HTC	0.20	mg/L		29-SEP-17	
Mercury Total							
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	25-SEP-17	25-SEP-17	R3838518
Nitrate in Water by IC							
Nitrate (as N)	0.040		0.020	mg/L		23-SEP-17	R3837599
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		27-SEP-17	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		23-SEP-17	R3837599
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		29-SEP-17	R3841172
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		29-SEP-17	R3840686
Phosphorus, Total							
Phosphorus (P)-Total	0.185		0.010	mg/L		26-SEP-17	R3838272
Sulfate in Water by IC							
Sulfate (SO ₄)	65.9		0.30	mg/L		23-SEP-17	R3837599
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0050		0.0030	mg/L	26-SEP-17	28-SEP-17	R3840700
Arsenic (As)-Total	0.00109		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L	26-SEP-17	28-SEP-17	R3840700
Calcium (Ca)-Total	53.4		0.050	mg/L	26-SEP-17	28-SEP-17	R3840700
Chromium (Cr)-Total	<0.00010		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Cobalt (Co)-Total	0.00022		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Copper (Cu)-Total	0.00288		0.00050	mg/L	26-SEP-17	28-SEP-17	R3840700
Iron (Fe)-Total	0.095		0.010	mg/L	26-SEP-17	28-SEP-17	R3840700
Lead (Pb)-Total	<0.000050		0.000050	mg/L	26-SEP-17	28-SEP-17	R3840700
Magnesium (Mg)-Total	9.21		0.0050	mg/L	26-SEP-17	28-SEP-17	R3840700
Manganese (Mn)-Total	0.0197		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Nickel (Ni)-Total	0.00173		0.00050	mg/L	26-SEP-17	28-SEP-17	R3840700

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1996042-1 WHA-4 Sampled By: CLIENT Matrix: WASTEWATER Total Metals in Water by CRC ICPMS Potassium (K)-Total Sodium (Na)-Total Zinc (Zn)-Total Total Organic Carbon by Combustion Total Organic Carbon Total Suspended Solids Total Suspended Solids pH pH	8.03 48.0 0.0086 6.66 <5.0 8.01		0.050 0.050 0.0030 0.50 5.0 0.10	mg/L mg/L mg/L mg/L mg/L pH units	26-SEP-17 26-SEP-17 26-SEP-17 03-OCT-17 28-SEP-17 23-SEP-17	28-SEP-17 28-SEP-17 28-SEP-17 03-OCT-17 28-SEP-17 23-SEP-17	R3840700 R3840700 R3840700 R3846431 R3841145 R3838028
L1996042-2 WHA-3 Sampled By: CLIENT Matrix: WASTEWATER Nunavut WW Group 1 Alkalinity, Bicarbonate Bicarbonate (HCO3) Alkalinity, Carbonate Carbonate (CO3) Alkalinity, Hydroxide Hydroxide (OH) Alkalinity, Total (as CaCO3) Alkalinity, Total (as CaCO3) Ammonia by colour Ammonia, Total (as N) Biochemical Oxygen Demand (BOD) Biochemical Oxygen Demand Carbonaceous BOD BOD Carbonaceous Chloride in Water by IC Chloride (Cl) Conductivity Conductivity Fecal coliforms, 1:10 dilution by QT97 Fecal Coliforms Hardness Calculated Hardness (as CaCO3) Mercury Total Mercury (Hg)-Total Nitrate in Water by IC Nitrate (as N) Nitrate+Nitrite Nitrate and Nitrite as N Nitrite in Water by IC Nitrite (as N) Oil & Grease - Gravimetric Oil and Grease Phenol (4AAP) Phenols (4AAP) Phosphorus, Total Phosphorus (P)-Total Sulfate in Water by IC Sulfate (SO4)	238 <0.60 <0.34 195 21.0 18.5 9.0 83.8 729 19900 126 0.0000148 0.257 0.346 0.089 5.6 0.0018 5.70 41.6		1.2 0.60 0.34 1.0 2.0 6.0 6.0 0.50 1.0 10 0.20 0.0000050 0.020 0.070 0.010 5.0 0.0010 0.10 0.30	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L umhos/cm MPN/100mL mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	26-SEP-17 26-SEP-17 26-SEP-17 23-SEP-17 26-SEP-17 23-SEP-17 23-SEP-17 25-SEP-17 23-SEP-17 22-SEP-17 29-SEP-17 25-SEP-17 25-SEP-17 27-SEP-17 25-SEP-17 29-SEP-17 29-SEP-17 26-SEP-17 25-SEP-17	26-SEP-17 26-SEP-17 26-SEP-17 23-SEP-17 26-SEP-17 23-SEP-17 23-SEP-17 25-SEP-17 23-SEP-17 22-SEP-17 29-SEP-17 25-SEP-17 25-SEP-17 27-SEP-17 25-SEP-17 29-SEP-17 29-SEP-17 26-SEP-17 25-SEP-17	R3838028 R3838798 R3840939 R3840939 R3839359 R3838028 R3837119 R3838518 R3839359 R3839359 R3839359 R3841172 R3840686 R3838272 R3839359

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1996042-2	WHA-3							
Sampled By: CLIENT								
Matrix: WASTEWATER								
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.224		0.0030	mg/L	26-SEP-17	28-SEP-17	R3840700
Arsenic (As)-Total		0.00228		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Cadmium (Cd)-Total		0.0000603		0.0000050	mg/L	26-SEP-17	28-SEP-17	R3840700
Calcium (Ca)-Total		35.8		0.050	mg/L	26-SEP-17	28-SEP-17	R3840700
Chromium (Cr)-Total		0.00055		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Cobalt (Co)-Total		0.00137		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Copper (Cu)-Total		0.0355		0.00050	mg/L	26-SEP-17	28-SEP-17	R3840700
Iron (Fe)-Total		0.738		0.010	mg/L	26-SEP-17	28-SEP-17	R3840700
Lead (Pb)-Total		0.000842		0.000050	mg/L	26-SEP-17	28-SEP-17	R3840700
Magnesium (Mg)-Total		8.79		0.0050	mg/L	26-SEP-17	28-SEP-17	R3840700
Manganese (Mn)-Total		0.136		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Nickel (Ni)-Total		0.00493		0.00050	mg/L	26-SEP-17	28-SEP-17	R3840700
Potassium (K)-Total		18.2		0.050	mg/L	26-SEP-17	28-SEP-17	R3840700
Sodium (Na)-Total		64.1		0.050	mg/L	26-SEP-17	28-SEP-17	R3840700
Zinc (Zn)-Total		0.0459		0.0030	mg/L	26-SEP-17	28-SEP-17	R3840700
Total Organic Carbon by Combustion								
Total Organic Carbon		42.8		0.50	mg/L		03-OCT-17	R3846431
Total Suspended Solids								
Total Suspended Solids		22.0		5.0	mg/L		28-SEP-17	R3841145
pH								
pH		7.50		0.10	pH units		23-SEP-17	R3838028
L1996042-3	WHA-2							
Sampled By: CLIENT								
Matrix: WASTEWATER								
BTEX plus F1-F4								
BTX plus F1 by GCMS								
Benzene		<0.00050		0.00050	mg/L		29-SEP-17	R3840305
Toluene		<0.0010		0.0010	mg/L		29-SEP-17	R3840305
Ethyl benzene		<0.00050		0.00050	mg/L		29-SEP-17	R3840305
o-Xylene		<0.00050		0.00050	mg/L		29-SEP-17	R3840305
m+p-Xylenes		<0.00040		0.00040	mg/L		29-SEP-17	R3840305
F1 (C6-C10)		<0.10		0.10	mg/L		29-SEP-17	R3840305
Surrogate: 4-Bromofluorobenzene (SS)		78.2		70-130	%		29-SEP-17	R3840305
CCME PHC F2-F4 in Water								
F2 (C10-C16)		<0.10		0.10	mg/L	25-SEP-17	25-SEP-17	R3838933
F3 (C16-C34)		<0.25		0.25	mg/L	25-SEP-17	25-SEP-17	R3838933
F4 (C34-C50)		<0.25		0.25	mg/L	25-SEP-17	25-SEP-17	R3838933
Surrogate: 2-Bromobenzotrifluoride		95.4		60-140	%	25-SEP-17	25-SEP-17	R3838933
CCME Total Hydrocarbons								
F1-BTEX		<0.10		0.10	mg/L		02-OCT-17	
F2-Naphth		<0.10		0.10	mg/L		02-OCT-17	
F3-PAH		<0.25		0.25	mg/L		02-OCT-17	
Total Hydrocarbons (C6-C50)		<0.38		0.38	mg/L		02-OCT-17	
Sum of Xylene Isomer Concentrations								
Xylenes (Total)		<0.00064		0.00064	mg/L		02-OCT-17	
Polyaromatic Hydrocarbons (PAHs)								
1-Methyl Naphthalene		0.000028		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
2-Methyl Naphthalene		0.000026		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Acenaphthene		<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Acenaphthylene		<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1996042-3 WHA-2							
Sampled By: CLIENT							
Matrix: WASTEWATER							
Polyaromatic Hydrocarbons (PAHs)							
Anthracene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Acridine	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(a)anthracene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Chrysene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Fluoranthene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Fluorene	<0.000020		0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Naphthalene	0.000070		0.000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Phenanthrene	<0.000050		0.000050	mg/L	28-SEP-17	01-OCT-17	R3843371
Pyrene	<0.000010		0.000010	mg/L	28-SEP-17	01-OCT-17	R3843371
Quinoline	0.000025	EMPC	0.000020	mg/L	28-SEP-17	01-OCT-17	R3843371
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	28-SEP-17	01-OCT-17	R3843371
Surrogate: Acenaphthene d10	99.8		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Acridine d9	114.3		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Chrysene d12	95.2		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Naphthalene d8	98.5		40-130	%	28-SEP-17	01-OCT-17	R3843371
Surrogate: Phenanthrene d10	96.3		40-130	%	28-SEP-17	01-OCT-17	R3843371
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	194		1.2	mg/L		26-SEP-17	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		26-SEP-17	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		26-SEP-17	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	159		1.0	mg/L		23-SEP-17	R3838028
Ammonia by colour							
Ammonia, Total (as N)	0.226		0.010	mg/L		25-SEP-17	R3837944
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		23-SEP-17	R3840939
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		23-SEP-17	R3840939
Chloride in Water by IC							
Chloride (Cl)	70.2		0.50	mg/L		25-SEP-17	R3839359
Conductivity							
Conductivity	604		1.0	umhos/cm		23-SEP-17	R3838028
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	20		10	MPN/100mL		22-SEP-17	R3837119
Hardness Calculated							
Hardness (as CaCO3)	196	HTC	0.20	mg/L		29-SEP-17	
Mercury Total							
Mercury (Hg)-Total	0.0000063		0.0000050	mg/L	25-SEP-17	25-SEP-17	R3838518
Nitrate in Water by IC							
Nitrate (as N)	0.140		0.020	mg/L		25-SEP-17	R3839359
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.140		0.070	mg/L		27-SEP-17	
Nitrite in Water by IC							

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1996042-3	WHA-2							
Sampled By:	CLIENT							
Matrix:	WASTEWATER							
Nitrite in Water by IC								
Nitrite (as N)		<0.010		0.010	mg/L		25-SEP-17	R3839359
Oil & Grease - Gravimetric								
Oil and Grease		<5.0		5.0	mg/L		29-SEP-17	R3841172
Phenol (4AAP)								
Phenols (4AAP)		<0.0010		0.0010	mg/L		29-SEP-17	R3840686
Phosphorus, Total								
Phosphorus (P)-Total		0.071		0.010	mg/L		26-SEP-17	R3838272
Sulfate in Water by IC								
Sulfate (SO4)		59.5		0.30	mg/L		25-SEP-17	R3839359
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.0245		0.0030	mg/L	26-SEP-17	28-SEP-17	R3840700
Arsenic (As)-Total		0.00104		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Cadmium (Cd)-Total		0.0000578		0.0000050	mg/L	26-SEP-17	28-SEP-17	R3840700
Calcium (Ca)-Total		62.3		0.050	mg/L	26-SEP-17	28-SEP-17	R3840700
Chromium (Cr)-Total		0.00032		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Cobalt (Co)-Total		0.00054		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Copper (Cu)-Total		0.00629		0.00050	mg/L	26-SEP-17	28-SEP-17	R3840700
Iron (Fe)-Total		0.698		0.010	mg/L	26-SEP-17	28-SEP-17	R3840700
Lead (Pb)-Total		0.000707		0.000050	mg/L	26-SEP-17	28-SEP-17	R3840700
Magnesium (Mg)-Total		9.70		0.0050	mg/L	26-SEP-17	28-SEP-17	R3840700
Manganese (Mn)-Total		0.102		0.00010	mg/L	26-SEP-17	28-SEP-17	R3840700
Nickel (Ni)-Total		0.00481		0.00050	mg/L	26-SEP-17	28-SEP-17	R3840700
Potassium (K)-Total		6.47		0.050	mg/L	26-SEP-17	28-SEP-17	R3840700
Sodium (Na)-Total		45.1		0.050	mg/L	26-SEP-17	28-SEP-17	R3840700
Zinc (Zn)-Total		0.0397		0.0030	mg/L	26-SEP-17	28-SEP-17	R3840700
Total Organic Carbon by Combustion								
Total Organic Carbon		6.14		0.50	mg/L		03-OCT-17	R3846431
Total Suspended Solids								
Total Suspended Solids		7.0		5.0	mg/L		28-SEP-17	R3841145
pH								
pH		7.89		0.10	pH units		23-SEP-17	R3838028

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B
Samples are diluted and seeded, have TCMP added to inhibit nitrogenous demands, and then are incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B
Samples are diluted and seeded and then incubated in airtight bottles at 20°C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A
The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.			
C-TOC-HTC-WP	Water	Total Organic Carbon by Combustion	APHA 5310 B-WP
Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L
Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.			
In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.			
In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.			
In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.			

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

1. All extraction and analysis holding times were met.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene. 3. Linearity of gasoline response within 15% throughout the calibration range.			
Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges: 1. All extraction and analysis holding times were met. 2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average. 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors. 4. Linearity of diesel or motor oil response within 15% throughout the calibration range.			
F2-F4-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511
Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.			
FC10-QT97-WP	Water	Fecal coliforms, 1:10 dilution by QT97	APHA 9223B QT97
Analysis is carried out using procedures adapted from APHA 9223 "Enzyme Substrate Coliform Test". Fecal (thermotolerant) coliform bacteria are determined by mixing a 1:10 dilution of sample with a product containing hydrolyzable substrates and sealing in a 97-well packet. The packet is incubated at 44.5 – 0.2°C for 18 hours and then the number of wells exhibiting positive responses are counted. The final results are obtained by comparing the number of positive responses to a probability table.			
HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0
Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.			
MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod.)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourimetrically.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
OG-GRAV-WP	Water	Oil & Grease - Gravimetric	EPA 1664 (modified)
Water samples are acidified and extracted with hexane; the hexane extract is collected in a pre-weighed vial. The solvent is evaporated and Total Oil & Grease is determined from the weight of the residue in the vial.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PAH,PANH-WP	Water	Polyaromatic Hydrocarbons (PAHs)	EPA SW 846/8270-GC/MS
Water is spiked with a surrogate spike mix and extracted using solvent extraction techniques. Analysis is performed by GC/MS in the selected ion monitoring (SIM) mode.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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 aqueous matrices is determined gravimetrically after drying the residue at 103 105°C.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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

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

mg/kg ww - 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.

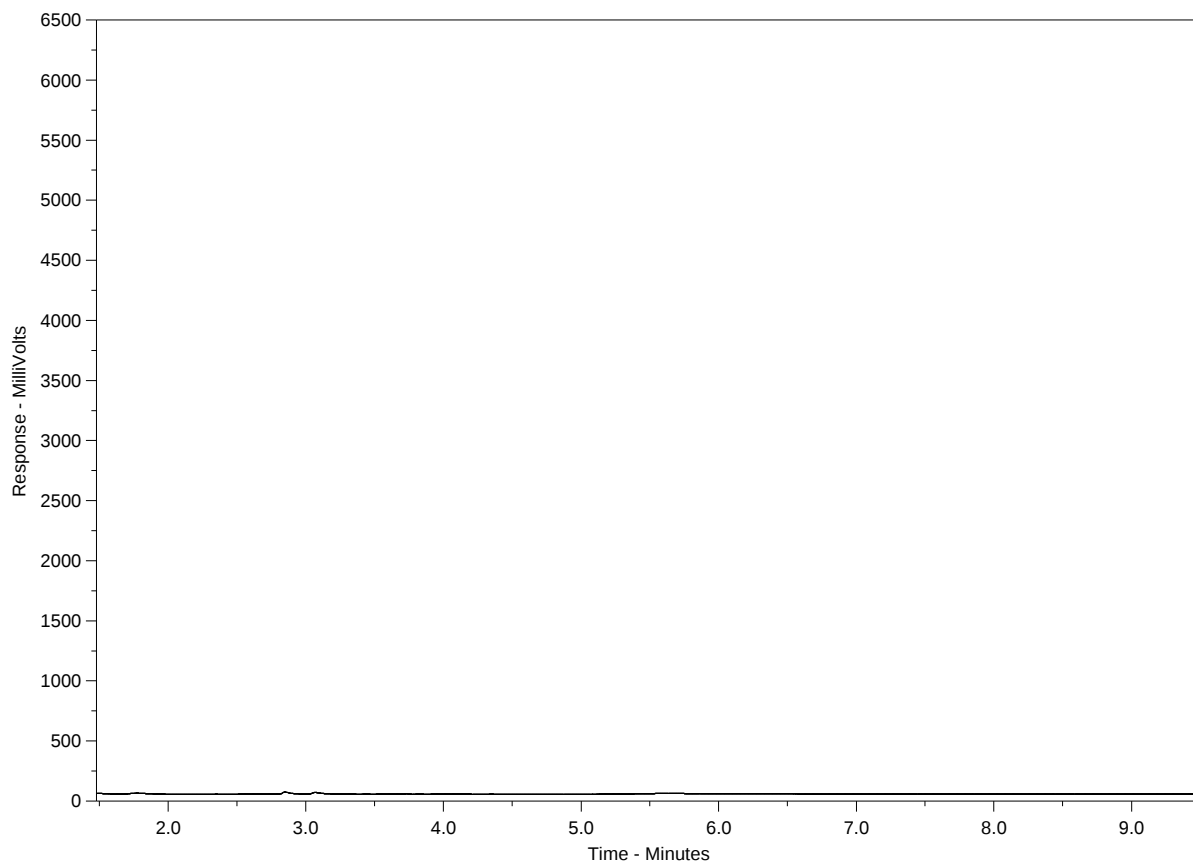
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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: L1996042-3
Client Sample ID: WHA-2



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

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

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

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

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

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1-800-368-3333



L1996042-COFC

Code label here (only)

COC Number: 14 - 503459

Page 1 of 1

L1996042

Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)

- ☒ Regular (Standard TAT if received by 3pm)
☐ Priority (2-4 business days if received by 3pm)
☐ Emergency (1-2 business days if received by 3pm)
☐ Same day or weekend emergency if received by 10am - contact ALS for surcharge.

Specify Date Required for E2, E or P:

Analysis Request

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

Sample #	Sample Name	Filter	Preserve	Test	Number of Containers
1	WHA-4			PAH	9
2	WHA-3			PAH	9
3	WHA-2			PAH	15
4	13TX-F1-F4, PAH			PAH	15
5	13TX-F1-F4, PAH			PAH	15
6	13TX-F1-F4, PAH			PAH	15
7	13TX-F1-F4, PAH			PAH	15
8	13TX-F1-F4, PAH			PAH	15
9	13TX-F1-F4, PAH			PAH	15
10	13TX-F1-F4, PAH			PAH	15
11	13TX-F1-F4, PAH			PAH	15
12	13TX-F1-F4, PAH			PAH	15
13	13TX-F1-F4, PAH			PAH	15
14	13TX-F1-F4, PAH			PAH	15
15	13TX-F1-F4, PAH			PAH	15
16	13TX-F1-F4, PAH			PAH	15
17	13TX-F1-F4, PAH			PAH	15
18	13TX-F1-F4, PAH			PAH	15
19	13TX-F1-F4, PAH			PAH	15
20	13TX-F1-F4, PAH			PAH	15

Report To
Company: Hamlet of Whale Cove
Contact: Ian Copland
Address: PO Box 120, Whale Cove, NU, X0C 0J0
Phone: 867-896-9961

Select A Quality C

Select Distribution: ☐ Via Air ☐ Via Ground ☐ Via Water

Email 1 or Fax: 500@WhaleCove.ca
Email 2: 500@WhaleCove.ca

Invoice To Same as Report To ☒ Yes ☐ No
Company: Hamlet of Whale Cove
Contact: Ian Copland

Invoice Distribution
Select Invoice Distribution: ☒ EMAIL ☐ FAX ☐ MAIL

Project Information
ALS Quote #: W10693
Job #:
O/AFE:
SD:
Location:
GL Account:
Routing Code:
ALS Lab Work Order # (lab use only):
ALS Sample # (lab use only):
Sample Identification and/or, Client Name:
(This description will appear on the report)

ALS Lab Work Order # (lab use only)
ALS Sample # (lab use only):
Sample Identification and/or, Client Name:
(This description will appear on the report)

ALS Sample # (lab use only)
Sample Identification and/or, Client Name:
(This description will appear on the report)

ALS Sample # (lab use only)
Sample Identification and/or, Client Name:
(This description will appear on the report)

Drinking Water (DW) Samples (client use)
Are samples taken from a Regulated DW System? ☐ Yes ☒ No
Are samples for human drinking water use? ☐ Yes ☒ No

Special Instructions / Specify Critical Parameters
Nunavut-WW-GRPI
13TX-F1-F4, PAH

Observations
Yes ☐ No ☐
Cooling Method: ☐ Yes ☐ No ☐
Cooling Temperature: ☐ Yes ☐ No ☐
Cooling Time: ☐ Yes ☐ No ☐
Cooling Location: ☐ Yes ☐ No ☐
Cooling Date: ☐ Yes ☐ No ☐
Cooling Time: ☐ Yes ☐ No ☐
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Cooling Location: ☐ Yes ☐ No ☐
Cooling Date: ☐ Yes

No Spills Found

Your search returned zero results

Whale Cove WHA-2			2014			2015		2017				Statistics		
Parameter	Unit	DL	23-Jul-14	14-Aug-14	09-Sep-14	24-Jun-15	05-Aug-15	08-Jun-17	12-Jul-17	28-Aug-17	22-Sep-17	Min	Max	Average
Alkalinity														
Bicarbonate (HCO3)	mg/L	1.2	/	/	/	131	265	154	235	258	194	131	265	206.17
Carbonate (CO3)	mg/L	0.60	/	/	/	0.60	3.00	0.60	0.60	0.60	0.60	0.60	3.00	1.00
Hydroxide (OH)	mg/L	0.34	/	/	/	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Total (as CaCO3)	mg/L	1.0	207	238	236	108	223	127	192	212	159	108	238	189.11
Ammonia by Colour														
Total (as N)	mg/L	0.20	1.35	2.54	4.36	0.304	0.65	0.99	1.83	1.85	0.226	0.226	4.36	1.57
Biochemical Oxygen Demand (BOD)														
Biochemical Oxygen Demand	mg/L	6.0	6.0	6.0	6.0	4.7	2.8	8.4	3.0	2	2.0	2	8.4	4.54
Carbonaceous BOD														
BOD Carbonaceous	mg/L	6.0	/	/	/	2.8	2.0	6.8	2.3	2	2	2.0	6.8	2.98
Chloride in Water by IC														
Chloride (Cl)	mg/L	10	90.7	105	88.2	29.8	72.5	123	157	184	70.2	29.8	184	102.27
Conductivity														
Conductivity	umhos/cm	1.0	829	892	714	401	734	769	951	964	604	401	964	762.00
Fecal Coliforms														
Fecal Coliforms	MPN/100mL	3	93	43	4	2300	150	5170	10	20	20	4	5170	867.78
Hardness Calculated														
Hardness (as CaCO3)	mg/L	0.30	285	289	142	152	127	221	291	316	196	127	316	224.33
Mercury Total														
Mercury (Hg)	mg/L	0.00020	/	/	/	0.000020	0.000020	0.0000058	0.0000050	0.0000064	0.0000063	0.0000050	0.000020	0.000011
Nitrate in Water by IC														
Nitrate (as N)	mg/L	0.40	/	/	/	0.077	0.061	0.113	0.054	0.043	0.14	0.043	0.14	0.081
Nitrate + Nitrite														
Nitrate and Nitrite as N	mg/L	0.45	0.071	0.071	1.56	0.077	0.070	0.127	0.070	0.07	0.140	0.070	1.56	0.25
Nitrite in Water by IC														
Nitrite (as N)	mg/L	0.20	/	/	/	0.010	0.010	0.015	0.020	0.02	0.010	0.010	0.020	0.014
Oil & Grease - Gravimetric														
Oil and Grease	mg/L	5.0	2.0	2.0	2.0	2.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	3.33
Phenol														
Phenols	mg/L	0.0010	0.0011	0.0011	0.0010	0.0033	0.0027	0.0057	0.0021	0.0014	0.001	0.001	0.0057	0.0022
Phosphorus, Total														
Phosphorus (P)	mg/L	0.010	/	/	/	0.119	0.137	0.210	0.109	0.114	0.071	0.071	0.21	0.13
Sulfate in Water by IC														
Sulfate (SO4)	mg/L	6.0	77.6	54.3	3.73	55.0	57.6	76.2	73.7	77.9	59.5	3.73	77.9	59.50
Total Metals by ICP-MS														
Aluminium (Al)	mg/L	0.0050	0.009	0.020	0.0091	0.0795	0.0099	0.0630	0.0099	0.0143	0.0245	0.009	0.0795	0.0266
Arsenic (As)	mg/L	0.00020	0.00245	0.0027	0.00513	0.00225	0.00639	0.00188	0.00238	0.00208	0.00104	0.00104	0.00639	0.00292
Cadmium (Cd)	mg/L	0.000010	0.000028	0.00020	0.000014	0.000060	0.000010	0.000084	0.0000199	0.0000155	0.0000578	0.00001	0.0002	0.00005
Calcium (Ca)	mg/L	0.10	88.7	90.1	44.3	52.2	40.1	68.1	90.3	94.6	62.3	40.1	94.6	70.08
Chromium (Cr)	mg/L	0.0010	0.0010	0.0020	0.0010	0.0019	0.0010	0.0010	0.00051	0.0003	0.00032	0.00032	0.002	0.0010
Cobalt (Co)	mg/L	0.00020	0.00152	0.00121	0.00065	0.00102	0.00088	0.00144	0.00115	0.00087	0.00054	0.00054	0.00152	0.0010
Copper (Cu)	mg/L	0.00020	0.00286	0.0020	0.00199	0.00738	0.00157	0.00930	0.00222	0.00156	0.00629	0.00156	0.0093	0.0039
Iron (Fe)	mg/L	0.010	1.56	1.9	0.26	1.10	0.91	2.24	1.71	2.16	0.698	0.26	2.24	1.39
Lead (Pb)	mg/L	0.000090	0.000408	0.0010	0.000090	0.00156	0.000090	0.00131	0.000326	0.000362	0.000707	0.00009	0.00156	0.0007
Magnesium (Mg)	mg/L	0.010	15.4	15.5	7.7	5.26	6.62	12.3	15.8	19.4	9.7	5.26	19.4	11.96
Manganese (Mn)	mg/L	0.00030	0.430	0.523	0.109	0.194	0.315	0.247	0.246	0.251	0.102	0.102	0.523	0.27
Nickel (Ni)	mg/L	0.0020	0.0066	0.0051	0.0025	0.0038	0.0027	0.0066	0.00588	0.00441	0.00481	0.0025	0.0066	0.0047
Potassium (K)	mg/L	0.020	12.8	11.8	17.7	4.54	15.5	9.92	14.6	12.8	6.47	4.54	17.7	11.79
Sodium (Na)	mg/L	0.030	64.4	67	73.7	21.1	59.3	63.1	79.7	99.4	45.1	21.1	99.4	63.64
Zinc (Zn)	mg/L	0.0020	0.0162	0.020	0.0044	0.0429	0.0020	0.0540	0.0122	0.0116	0.0397	0.0020	0.054	0.023
Total Organic Carbon by Combustion														
Total Organic Carbon	mg/L	0.50	/	/	/	4.5	12.6	12.4	12.8	8.85	6.14	4.5	12.8	9.55
Total Suspended Solids														
Total Suspended Solids	mg/L	13	9.0	12.0	5.0	12.0	5.0	12.0	9.0	18.0	7.0	5.0	18	9.89
pH														
pH	pH Units	0.10	7.98	8.38	7.66	7.74	8.30	7.60	7.79	7.83	7.89	7.6	8.38	7.91
Benzene	mg/L	0.00050	/	/	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050
Toluene	mg/L	0.0010	/	/	/	/	/	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Ethyl Benzene	mg/L	0.00050	/	/	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050
o-Xylene	mg/L	0.00050	/	/	/	/	/	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050
F1 (C6-C10)	mg/L	0.10	/	/	/	/	/	0.10	0.10	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	0.10	0.10	0.10
F3 (C16-C34)	mg/L	0.25	/	/	/	/	/	0.25	0.25	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	0.25	0.25	0.25
Total Hydrocarbons (C6-C50)	mg/L	0.44	/	/	/	/	/	0.38	0.38	0.38	0.1	0.1	0.38	0.31

Whale Cove WHA-3																
			2014			2015		2016		2017				Statistics		
Parameter	Unit	DL	23-Jul-14	14-Aug-14	09-Sep-14	24-Jun-15	05-Aug-15	13-Jul-16	26-Jul-16	08-Jun-17	12-Jul-17	28-Aug-17	22-Sep-17	Min	Max	Average
Alkalinity																
Bicarbonate (HCO3)	mg/L	1.2	/	/	/	264	254	191	185	338	330	252	238	185	338	256.50
Carbonate (CO3)	mg/L	0.60	/	/	/	0.60	6.36	0.60	0.60	0.60	0.60	0.60	0.60	0.60	6.36	1.32
Hydroxide (OH)	mg/L	0.34	/	/	/	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Total (as CaCO3)	mg/L	1.0	105	136	170	216	219	157	152	277	271	207	195	105	277	191.36
Ammonia by Colour																
Total (as N)	mg/L	0.20	4.7	9	14.8	30.2	9.4	16.1	2.55	43.8	35.2	20.9	21	2.55	43.8	18.88
Biochemical Oxygen Demand (BOD)																
Biochemical Oxygen Demand	mg/L	6.0	15.2	6.0	12.9	24	3.0	23.8	67	77	33	39	18.5	3.0	77	29.04
Carbonaceous BOD																
BOD Carbonaceous	mg/L	6.0	/	/	/	30	2.0	18.5	63	69	31.2	11.2	9	2.0	69	29.24
Chloride in Water by IC																
Chloride (Cl)	mg/L	10	85.3	106	85.7	73.3	95.0	84.8	86.7	79.9	91.8	99.7	83.8	73.3	106	88.36
Conductivity																
Conductivity	umhos/cm	1.0	766	656	707	719	717	666	625	900	877	774	729	625	900	739.64
Fecal Coliforms																
Fecal Coliforms	MPN/100mL	3	200	2300	3800	110000	7	2400	430	24200	15500	12000	19900	7	110000	17339.73
Hardness Calculated																
Hardness (as CaCO3)	mg/L	0.30	98.6	101	96.9	82.4	127	95.3	99.3	130	152	164	126	82.4	164	115.68
Mercury Total																
Mercury (Hg)	mg/L	0.00020	/	/	/	0.00020	0.000020	0.000020	0.000020	0.0000131	0.0000071	0.000025	0.0000148	0.0000071	0.0002	0.000040
Nitrate in Water by IC																
Nitrate (as N)	mg/L	0.40	/	/	/	0.020	0.020	0.861	0.020	0.040	0.085	0.287	0.257	0.020	0.861	0.20
Nitrate + Nitrite																
Nitrate and Nitrite as N	mg/L	0.45	0.968	0.071	0.127	0.070	0.070	1.38	0.070	0.070	0.085	0.766	0.346	0.070	1.38	0.37
Nitrite in Water by IC																
Nitrite (as N)	mg/L	0.20	/	/	/	0.010	0.010	0.518	0.010	0.020	0.020	0.480	0.089	0.010	0.518	0.145
Oil & Grease - Gravimetric																
Oil and Grease	mg/L	5.0	2.0	2.0	2.0	3.5	2.0	5.0	5.3	14.5	5.0	5	5.6	2.0	14.5	4.72
Phenol																
Phenols	mg/L	0.0010	0.0010	0.0010	0.0014	0.0504	0.0017	0.0019	0.0026	0.0641	0.0015	0.0016	0.0018	0.0010	0.0641	0.012
Phosphorus, Total																
Phosphorus (P)	mg/L	0.010	/	/	/	6.32	4.44	5.66	5.56	5.80	6.07	7.88	5.70	4.44	7.88	5.93
Sulfate in Water by IC																
Sulfate (SO4)	mg/L	6.0	22.7	53	26.8	20.0	9.41	22.2	20.8	38.0	56.6	50.1	41.6	9.41	56.6	32.84
Total Metals by ICP-MS																
Aluminium (Al)	mg/L	0.0050	0.0516	0.128	0.328	0.107	0.0087	0.0688	0.103	0.125	0.0492	0.14	0.2240	0.0087	0.328	0.12
Arsenic (As)	mg/L	0.00020	0.00073	<0.0010	0.00092	0.00060	0.00618	0.00075	0.00084	0.00169	0.00182	0.00184	0.00228	0.0006	0.00618	0.00177
Cadmium (Cd)	mg/L	0.000010	0.000010	0.00025	0.000058	0.000021	0.000010	0.000013	0.000017	0.000066	0.0000306	0.0000393	0.0000603	0.00001	0.00025	0.00005
Calcium (Ca)	mg/L	0.10	28.6	28.9	27.4	23.0	40.5	27.7	28.8	37.3	45.3	48.6	35.8	23	48.6	33.81
Chromium (Cr)	mg/L	0.0010	0.0010	0.0020	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.00033	0.0005	0.00055	0.00033	0.0020	0.0009
Cobalt (Co)	mg/L	0.00020	0.00034	0.00050	0.00049	0.00041	0.00087	0.00041	0.00046	0.00170	0.00131	0.00119	0.00137	0.00034	0.0017	0.00082
Copper (Cu)	mg/L	0.00020	0.0152	0.0209	0.0404	0.0374	0.00147	0.0223	0.0228	0.0708	0.0304	0.0251	0.0355	0.00147	0.0708	0.029
Iron (Fe)	mg/L	0.010	0.10	0.23	0.52	0.22	0.88	0.109	0.142	0.479	0.249	0.484	0.738	0.10	0.88	0.38
Lead (Pb)	mg/L	0.000090	0.000090	0.0010	0.000791	0.000457	0.000090	0.000231	0.000227	0.000956	0.000409	0.000503	0.000842	0.000090	0.0010	0.00051
Magnesium (Mg)	mg/L	0.010	6.58	7.01	6.94	6.08	6.36	6.35	6.66	8.85	9.36	10.3	8.79	6.08	10.3	7.57
Manganese (Mn)	mg/L	0.00030	0.0373	0.068	6.94	0.0603	0.311	0.0512	0.0613	0.115	0.104	0.141	0.136	0.0373	6.94	0.73
Nickel (Ni)	mg/L	0.0020	0.0020	0.0025	0.0026	0.0020	0.0026	0.0020	0.0022	0.0044	0.00421	0.00505	0.00493	0.002	0.00505	0.0031
Potassium (K)	mg/L	0.020	18.2	19.4	17.8	17.5	15.2	19.0	18.7	20.5	22.8	24	18.2	15.2	24	19.21
Sodium (Na)	mg/L	0.030	67.5	70.2	67.5	59.3	57.5	63.4	69.8	63.5	69.0	77.7	64.1	57.5	77.7	66.32
Zinc (Zn)	mg/L	0.0020	0.0102	0.023	0.0523	0.0285	0.0020	0.0153	0.0177	0.0521	0.0178	0.408	0.0459	0.002	0.408	0.061
Total Organic Carbon by Combustion																
Total Organic Carbon	mg/L	0.50	/	/	/	28.2	16.3	28.3	32.7	82.8	38.8	62	42.8	16.3	82.8	41.49
Total Suspended Solids																
Total Suspended Solids	mg/L	13	35.0	9.0	5.0	11.0	5.0	27.0	970	46.0	36	68.0	22	5.0	970	112.18
pH																
pH	pH Units	0.10	8.25	8.13	7.5	7.72	8.46	7.55	7.06	7.37	8.10	7.60	7.50	7.06	8.46	7.75
Benzene	mg/L	0.00050	/	/	/	/	0.00050	/	/	/	/	/	/	0.0005	0.0005	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	/	/	/	/	0.25	/	/	/	/	/	/	0.25	0.25	0.25
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	/	/	/	/	0.44	/	/	/	/	/	/	0.44	0.44	0.44

Whale Cove
WHA-4

			2014			2015		2016			2017				Statistics		
Parameter	Unit	DL	23-Jul-14	14-Aug-14	09-Sep-14	24-Jun-15	05-Aug-15	13-Jul-16	26-Jul-16	31-Aug-16	08-Jun-17	12-Jul-17	28-Aug-17	22-Sep-17	Min	Max	Average
Alkalinity																	
Bicarbonate (HCO3)	mg/L	1.2	/	/	/	211	136	188	224	60.4	234	219	302	186	60.4	302	195.60
Carbonate (CO3)	mg/L	0.60	/	/	/	0.60	0.60	0.60	0.60	0.60	6.72	0.600	0.60	0.600	0.60	6.72	1.28
Hydroxide (OH)	mg/L	0.34	/	/	/	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Total (as CaCO3)	mg/L	1.0	180	189	169	173	112	154	184	49.5	203	180	248	153	49.5	248	166.21
Ammonia by Colour																	
Total (as N)	mg/L	0.20	0.69	2.48	1.21	7.2	9.2	12.9	1.77	0.038	0.105	0.055	0.021	0.017	0.017	12.9	2.97
Biochemical Oxygen Demand (BOD)																	
Biochemical Oxygen Demand	mg/L	6.0	6.0	6.0	6.0	6.2	24.2	19.2	8.4	2.0	10.3	2.0	2	2.0	2.0	24.2	7.86
Carbonaceous BOD																	
BOD Carbonaceous	mg/L	6.0	/	/	/	5.9	14.0	11.3	7.9	2.0	6.4	2.0	2	2.0	2.0	14	5.94
Chloride in Water by IC																	
Chloride (Cl)	mg/L	10	89.6	89.2	114	66.6	78.8	86.2	98.2	9.32	123	43.2	95.9	56	9.32	123	79.17
Conductivity																	
Conductivity	umhos/cm	1.0	675	716	709	555	564	661	704	133	819	413	845	562	133	845	613.00
Fecal Coliforms																	
Fecal Coliforms	MPN/100mL	3	4	3	750	23	430	4300	/	3	10	10	10	30	3	4300	506.64
Hardness Calculated																	
Hardness (as CaCO3)	mg/L	0.30	158	149	263	124	89.1	109	183	52.9	185	192	355	171	52.9	355	169.25
Mercury Total																	
Mercury (Hg)	mg/L	0.00020	/	/	/	0.000020	0.00020	0.000020	0.000020	0.000020	0.0000050	0.0000050	0.0000050	0.0000050	0.000005	0.0002	0.000033
Nitrate in Water by IC																	
Nitrate (as N)	mg/L	0.40	/	/	/	0.161	0.418	1.27	2.03	0.039	0.028	0.020	0.04	0.040	0.02	2.03	0.45
Nitrate + Nitrite																	
Nitrate and Nitrite as N	mg/L	0.45	3.12	0.34	0.071	0.183	0.956	1.64	2.12	0.070	0.070	0.070	0.070	0.070	0.07	3.12	0.73
Nitrite in Water by IC																	
Nitrite (as N)	mg/L	0.20	/	/	/	0.022	0.538	0.371	0.099	0.010	0.010	0.010	0.020	0.010	0.01	0.538	0.12
Oil & Grease - Gravimetric																	
Oil and Grease	mg/L	5.0	2.0	89.2	2.0	2.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	89.2	11.02
Phenol																	
Phenols	mg/L	0.0010	0.0010	0.0010	0.0010	0.0045	0.0028	0.0018	0.0013	0.0024	0.0039	0.0011	0.001	0.001	0.001	0.0045	0.00
Phosphorus, Total																	
Phosphorus (P)	mg/L	0.010	/	/	/	3.34	5.15	5.40	2.26	0.019	4.19	0.390	0.301	0.185	0.019	5.4	2.36
Sulfate in Water by IC																	
Sulfate (SO4)	mg/L	6.0	2.82	23.7	52.8	6.92	23.1	18.6	7.49	4.43	30.9	12.2	122	65.9	2.82	122	30.91
Total Metals by ICP-MS																	
Aluminium (Al)	mg/L	0.0050	0.0299	0.021	0.0111	0.0607	0.0357	0.0732	0.0457	0.0665	0.0236	0.0117	0.159	0.0050	0.005	0.159	0.05
Arsenic (As)	mg/L	0.00020	0.00482	0.0045	0.00161	0.00526	0.00067	0.00362	0.00359	0.00025	0.00836	0.00061	0.00104	0.00109	0.00025	0.00836	0.00295
Cadmium (Cd)	mg/L	0.000010	0.000011	0.000020	0.000039	0.000030	0.000012	0.000016	0.000010	0.000010	0.000012	0.0000107	0.0000163	0.000005	0.000005	0.0002	0.000031
Calcium (Ca)	mg/L	0.10	50.7	46.3	82.4	39.7	25.6	33.0	59.2	17.5	52.3	67.9	119	53.4	17.5	119	53.92
Chromium (Cr)	mg/L	0.0010	0.0010	0.0020	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.00012	0.0005	0.0001	0.0001	0.002	0.0009
Cobalt (Co)	mg/L	0.00020	0.00056	0.00057	0.00094	0.00195	0.00038	0.00071	0.00074	0.00020	0.00078	0.00010	0.0003	0.00022	0.0001	0.00195	0.0006
Copper (Cu)	mg/L	0.00020	0.0019	0.0020	0.00262	0.00540	0.0187	0.0134	0.00234	0.00975	0.00176	0.00323	0.00341	0.00288	0.00176	0.0187	0.006
Iron (Fe)	mg/L	0.010	0.62	0.37	1.66	3.14	0.10	0.682	1.43	0.082	0.913	0.220	0.739	0.095	0.082	3.14	0.84
Lead (Pb)	mg/L	0.000090	0.000090	0.0010	0.000501	0.000189	0.000130	0.000185	0.000090	0.000191	0.000100	0.000050	0.000129	0.000050	0.00005	0.001	0.0002
Magnesium (Mg)	mg/L	0.010	7.66	8.05	13.8	6.02	6.09	6.53	8.61	2.23	13.2	5.54	13.9	9.21	2.23	13.9	8.40
Manganese (Mn)	mg/L	0.00030	0.0671	0.0387	0.244	0.674	0.0411	0.125	0.254	0.00205	0.114	0.0401	0.0465	0.0197	0.00205	0.674	0.14
Nickel (Ni)	mg/L	0.0020	0.0029	0.0029	0.0047	0.0032	0.0020	0.0023	0.0031	0.0027	0.0036	0.00116	0.00224	0.00173	0.00116	0.0047	0.0027
Potassium (K)	mg/L	0.020	12.0	15.0	9.31	16.2	17.5	17.8	10.5	0.575	28.6	1.75	7.39	8.03	0.575	28.6	12.05
Sodium (Na)	mg/L	0.030	77.6	79.8	67.4	54.3	57.9	63.8	75.9	8.95	88.7	25.6	74.1	48	8.95	88.7	60.17
Zinc (Zn)	mg/L	0.0020	0.0023	0.020	0.0361	0.0090	0.0123	0.0086	0.0022	0.0020	0.0023	0.0030	0.0055	0.0086	0.002	0.0361	0.01
Total Organic Carbon by Combustion																	
Total Organic Carbon	mg/L	0.50	/	/	/	19.0	29.6	24.0	13.7	6.62	20.2	4.37	7.51	6.66	4.37	29.6	14.63
Total Suspended Solids																	
Total Suspended Solids	mg/L	13	10.0	9.0	7.0	15.0	19.0	17.0	5.0	5.0	17.0	5.00	5.0	5.00	5	19	9.92
pH																	
pH	pH Units	0.10	8.46	8.27	7.43	7.94	7.61	7.45	7.70	7.90	8.48	7.70	7.95	8.01	7.45	8.48	7.95
Benzene	mg/L	0.00050	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0.00
Toluene	mg/L	0.0010	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0.00
Ethyl Benzene	mg/L	0.00050	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0.00
o-Xylene	mg/L	0.00050	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0.00
F1 (C6-C10)	mg/L	0.10	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0.00
F2 (C10-C16)	mg/L	0.25	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0.00
F3 (C16-C34)	mg/L	0.25	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0.00
F4 (C34-C50)	mg/L	0.25	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0.00
Total Hydrocarbons (C6-C50)	mg/L	0.44	/	/	/	/	/	/	/	/	/	/	/	/	0	0	0.00