ANNUAL REPORT

FOR THE MUNICIPALITY OF WHALE COVE

YEAR BEING REPORTED: 2022

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water Licence No. **3BM-WHA2126** issued to the **Municipality of Whale Cove**.

a. Tabular summaries and a brief written interpretation of all data generated under the "Monitoring Program";
b. The monthly and annual quantities in cubic metres of Water obtained at Water Supply Facility;

Table 1: Summary of water obtained from ls combined and estimated sewage water discharge in m^3

Month Reported	Quantity of Water Obtained from all sources (m^3)	Quantity of Sewage Waste Discharged (m^3)
January	1469.535	Same
February	1267.837	Same
March	937.933	Same
April	1919.241	Same
May	1246.358	Same
June	984.902	Same
July	1226.213	Same
August	1255.281	Same
September	1250.339	Same
October		Same
November		Same
December		Same
ANNUAL TOTAL		Same

Note: No meter exists to measure the sewage discharge volumes, therefore Sewage

discharge volumes are considered equal to the water consumption volumes.

c. A summary of modifications and/or major maintenance work and/or investigations carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities;

- Design of WTP complete, construction of intake to begin 2023,. A notification will be submitted to NWB 60-days before construction activities begin along with the Abandonment and Restoration plan for the old pumphouse building.

d. A list of unauthorized discharges and a summary of follow-up actions taken;

- None

e. A description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;

- Abandonment and Restoration plan for the old pumphouse building Plan will be submitted to NWB in 2023 as well as a construction summary report at the end of the project.

f. Any updates or revisions for manuals and plans (including Operations and Maintenance Manual/Plans) as required by changes in operation and/or technology;

- Water Supply Operations and Maintenance Plan and drawings will be submitted once the facility is commissioned.

g. A summary of any studies, reports and plans requested by the Board that relate to Waste disposal, Water use or reclamation, and a brief description of any future studies planned; and

- Planning for Solid Waste Facility in Whale Cove is still in progress. It is expected that planning will be completed in August 2024.

h. Any other details on Water use or Waste disposal requested by the Board by the 1st November of the year being reported.

- None

ANNUAL REPORT

FOR THE MUNICIPALITY OF WHALE COVE

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

Water Licensing Sampling Points:

WHA-2: Runoff from Solid Waste Disposal Facilities
WHA-3: Final Discharge Point for effluent from the Sewage Disposal Facility prior to the wetland
WHA-4: Effluent outfall area from the wetland area

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

- No CIRNAC Inspection took place in 2022

Appendix A: WHA-3 Effluent Quality Limits

Appendix B: Certificate of Analysis

Appendix A: Effluent Quality Limits

3BM-WHA1520 Whale Cove Monitoring Program Results 2021
WHA-3 Effluent Quality limits

Parameter	**Maximum Concentration of any grab sample**	**28-Sept-2022**
BOD_5	80 mg/L	**10.8**
Total Suspended Solids	100 mg/L	**9.6**
Fecal Coliforms	1 x 10^4 CFU/100mL	**7270**
Oil & Grease	no visible sheen	**<5.0**
pH	between 6 and 9	**7.60**

Appendix B: Certification of Analysis

Hamlet of Whale Cove
ATTN: BRIAN FLEMMING
PO Box 120
Whale Cove NU X0C 0J0

Date Received: 28-SEP-22
Report Date: 20-OCT-22 08:43 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: L2734740

Project P.O. #: NOT SUBMITTED
Job Reference: WHALE COVE , NU - WASTE WATER
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2734740-1 WHA-3							
Sampled By: CLIENT on 26-SEP-22							
Matrix: EFFLUENT							
BTEX							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		03-OCT-22	R5869416
Toluene	<0.0010		0.0010	mg/L		03-OCT-22	R5869416
Ethyl benzene	<0.00050		0.00050	mg/L		03-OCT-22	R5869416
o-Xylene	<0.00050		0.00050	mg/L		03-OCT-22	R5869416
m+p-Xylenes	<0.00040		0.00040	mg/L		03-OCT-22	R5869416
F1 (C6-C10)	<0.10		0.10	mg/L		03-OCT-22	R5869416
Surrogate: 4-Bromofluorobenzene (SS)	105.7		70-130	%		03-OCT-22	R5869416
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		19-OCT-22	
F2-Naphth	<0.10		0.10	mg/L		19-OCT-22	
F3-PAH	<0.25		0.25	mg/L		19-OCT-22	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		19-OCT-22	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		05-OCT-22	
F2-F4 (O.Reg.153/04)							
F2 (C10-C16)	<100		100	ug/L	05-OCT-22	19-OCT-22	R5877156
F3 (C16-C34)	<250		250	ug/L	05-OCT-22	19-OCT-22	R5877156
F4 (C34-C50)	<250		250	ug/L	05-OCT-22	19-OCT-22	R5877156
Chrom. to baseline at nC50	YES			ppm	05-OCT-22	19-OCT-22	R5877156
Surrogate: 2-Bromobenzotrifluoride	99.4		60-140	%	05-OCT-22	19-OCT-22	R5877156
CCME PAHs in mg/L							
1-Methylnaphthalene	<0.000020		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
2-Methylnaphthalene	<0.000020		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
Acenaphthene	<0.000020		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
Acenaphthylene	<0.000020		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
Anthracene	<0.000010		0.000010	mg/L	05-OCT-22	05-OCT-22	R5869781
Acridine	<0.000020		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
Benzo(a)anthracene	<0.000010		0.000010	mg/L	05-OCT-22	05-OCT-22	R5869781
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	05-OCT-22	05-OCT-22	R5869781
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	05-OCT-22	05-OCT-22	R5869781
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	05-OCT-22	05-OCT-22	R5869781
Chrysene	<0.000020		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
Dibenz(a,h)anthracene	0.0000088		0.0000050	mg/L	05-OCT-22	05-OCT-22	R5869781
Fluoranthene	<0.000020		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
Fluorene	<0.000020		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
Indeno(1,2,3-cd)pyrene	0.000088		0.000010	mg/L	05-OCT-22	05-OCT-22	R5869781
Naphthalene	<0.000050		0.000050	mg/L	05-OCT-22	05-OCT-22	R5869781
Phenanthrene	<0.000050		0.000050	mg/L	05-OCT-22	05-OCT-22	R5869781
Pyrene	<0.000010		0.000010	mg/L	05-OCT-22	05-OCT-22	R5869781
Quinoline	0.000071		0.000020	mg/L	05-OCT-22	05-OCT-22	R5869781
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	05-OCT-22	05-OCT-22	R5869781
Surrogate: Naphthalene d8	110.0		50-130	%	05-OCT-22	05-OCT-22	R5869781
Surrogate: Phenanthrene d10	116.2		60-130	%	05-OCT-22	05-OCT-22	R5869781
Surrogate: Chrysene d12	127.7		60-130	%	05-OCT-22	05-OCT-22	R5869781
Surrogate: Acridine d9	105.4		60-130	%	05-OCT-22	05-OCT-22	R5869781
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	196		1.2	mg/L		12-OCT-22	
Alkalinity, Carbonate							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2734740-1 WHA-3							
Sampled By: CLIENT on 26-SEP-22							
Matrix: EFFLUENT							
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		12-OCT-22	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		12-OCT-22	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	161		1.0	mg/L		11-OCT-22	R5872597
Ammonia by colour							
Ammonia, Total (as N)	0.039		0.010	mg/L		13-OCT-22	R5873856
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	10.8		2.0	mg/L		29-SEP-22	R5868976
Carbonaceous BOD							
BOD Carbonaceous	5.8		2.0	mg/L		29-SEP-22	R5868976
Chloride in Water by IC							
Chloride (Cl)	74.5		0.50	mg/L		28-SEP-22	R5867005
Conductivity							
Conductivity	613		1.0	umhos/cm		11-OCT-22	R5872597
Fecal coliforms, 1:10 dilution by QT97							
Fecal Coliforms	7270	PEHR	10	MPN/100mL		28-SEP-22	R5866876
Hardness Calculated							
Hardness (as CaCO3)	104	HTC	0.20	mg/L		06-OCT-22	
Mercury Total							
Mercury (Hg)-Total	0.0000089		0.0000050	mg/L	03-OCT-22	04-OCT-22	R5868967
Nitrate in Water by IC							
Nitrate (as N)	0.350		0.020	mg/L		28-SEP-22	R5867005
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.499		0.070	mg/L		29-SEP-22	
Nitrite in Water by IC							
Nitrite (as N)	0.149		0.010	mg/L		28-SEP-22	R5867005
Oil & Grease - Gravimetric							
Oil and Grease	<5.0		5.0	mg/L		29-SEP-22	R5867249
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-OCT-22	R5870789
Phosphorus, Total							
Phosphorus (P)-Total	0.702		0.0030	mg/L		05-OCT-22	R5869456
Sulfate in Water by IC							
Sulfate (SO4)	19.2		0.30	mg/L		28-SEP-22	R5867005
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0956		0.0030	mg/L	04-OCT-22	05-OCT-22	R5870463
Arsenic (As)-Total	0.00093		0.00010	mg/L	04-OCT-22	05-OCT-22	R5870463
Cadmium (Cd)-Total	0.0000232		0.0000050	mg/L	04-OCT-22	05-OCT-22	R5870463
Calcium (Ca)-Total	30.4		0.050	mg/L	04-OCT-22	05-OCT-22	R5870463
Chromium (Cr)-Total	0.00038		0.00010	mg/L	04-OCT-22	05-OCT-22	R5870463
Cobalt (Co)-Total	0.00062		0.00010	mg/L	04-OCT-22	05-OCT-22	R5870463
Copper (Cu)-Total	0.0217		0.00050	mg/L	04-OCT-22	05-OCT-22	R5870463
Iron (Fe)-Total	0.415		0.010	mg/L	04-OCT-22	05-OCT-22	R5870463
Lead (Pb)-Total	0.000354		0.000050	mg/L	04-OCT-22	05-OCT-22	R5870463
Magnesium (Mg)-Total	6.92		0.0050	mg/L	04-OCT-22	05-OCT-22	R5870463
Manganese (Mn)-Total	0.104		0.00010	mg/L	04-OCT-22	05-OCT-22	R5870463
Nickel (Ni)-Total	0.00249		0.00050	mg/L	04-OCT-22	05-OCT-22	R5870463
Potassium (K)-Total	18.4		0.050	mg/L	04-OCT-22	05-OCT-22	R5870463
Sodium (Na)-Total	63.7		0.050	mg/L	04-OCT-22	05-OCT-22	R5870463
Zinc (Zn)-Total	0.0235		0.0030	mg/L	04-OCT-22	05-OCT-22	R5870463
Total Organic Carbon by Combustion							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2734740-1 WHA-3							
Sampled By: CLIENT on 26-SEP-22							
Matrix: EFFLUENT							
Total Organic Carbon by Combustion							
Total Organic Carbon	17.3		0.50	mg/L		13-OCT-22	R5874618
Total Suspended Solids							
Total Suspended Solids	9.6		3.0	mg/L		03-OCT-22	R5868858
pH							
pH	7.60		0.10	pH units		11-OCT-22	R5872597

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.

Test Method References:

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

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

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

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

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

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

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

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

BOD-CBOD-WP	Water	Carbonaceous BOD	APHA 5210 B

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

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

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

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

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

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

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

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

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

EC-WP	Water	Conductivity	APHA 2510B

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

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

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

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

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

HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PH-WP	Water	pH	APHA 4500H

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

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

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

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

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: Hamlet of Whale Cove
PO Box 120
Whale Cove NU X0C 0J0
Contact: BRIAN FLEMMING

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	**Water**							
Batch R5872597								
WG3767493-9 LCS								
Alkalinity, Total (as CaCO3)			99.5		%		85-115	11-OCT-22
WG3767493-6 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	11-OCT-22
BOD-CBOD-WP	**Water**							
Batch R5868976								
WG3765521-7 LCS								
BOD Carbonaceous			100.1		%		85-115	29-SEP-22
WG3765521-6 MB								
BOD Carbonaceous			<2.0		mg/L		2	29-SEP-22
BOD-WP	**Water**							
Batch R5868976								
WG3765521-7 LCS								
Biochemical Oxygen Demand			98.9		%		85-115	29-SEP-22
WG3765521-6 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	29-SEP-22
BTEXS+F1-HSMS-WP	**Water**							
Batch R5869416								
WG3766159-2 LCS								
Benzene			92.9		%		70-130	03-OCT-22
Toluene			90.0		%		70-130	03-OCT-22
Ethyl benzene			90.1		%		70-130	03-OCT-22
o-Xylene			95.4		%		70-130	03-OCT-22
m+p-Xylenes			102.1		%		70-130	03-OCT-22
WG3766159-3 LCS								
F1 (C6-C10)			110.5		%		70-130	03-OCT-22
WG3766159-1 MB								
Benzene			<0.00050		mg/L		0.0005	03-OCT-22
Toluene			<0.0010		mg/L		0.001	03-OCT-22
Ethyl benzene			<0.00050		mg/L		0.0005	03-OCT-22
o-Xylene			<0.00050		mg/L		0.0005	03-OCT-22
m+p-Xylenes			<0.00040		mg/L		0.0004	03-OCT-22
F1 (C6-C10)			<0.10		mg/L		0.1	03-OCT-22
Surrogate: 4-Bromofluorobenzene (SS)			79.1		%		70-130	03-OCT-22
C-TOC-HTC-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-TOC-HTC-WP	**Water**							
Batch R5874618								
WG3768108-2 LCS								
Total Organic Carbon			99.96		%		80-120	13-OCT-22
WG3768108-1 MB								
Total Organic Carbon			<0.50		mg/L		0.5	13-OCT-22
CL-IC-N-WP	**Water**							
Batch R5867005								
WG3765420-6 LCS								
Chloride (Cl)			98.9		%		90-110	28-SEP-22
WG3765420-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	28-SEP-22
EC-WP	**Water**							
Batch R5872597								
WG3767493-8 LCS								
Conductivity			98.3		%		90-110	11-OCT-22
WG3767493-6 MB								
Conductivity			<1.0		umhos/cm		1	11-OCT-22
F2-F4-WT	**Water**							
Batch R5877156								
WG3766486-2 LCS								
F2 (C10-C16)			109.6		%		70-130	19-OCT-22
F3 (C16-C34)			113.1		%		70-130	19-OCT-22
F4 (C34-C50)			115.3		%		70-130	19-OCT-22
WG3766486-1 MB								
F2 (C10-C16)			<100		ug/L		100	19-OCT-22
F3 (C16-C34)			<250		ug/L		250	19-OCT-22
F4 (C34-C50)			<250		ug/L		250	19-OCT-22
Surrogate: 2-Bromobenzotrifluoride			92.6		%		60-140	19-OCT-22
FC10-QT97-WP	**Water**							
Batch R5866876								
WG3765409-1 MB								
Fecal Coliforms			<1		MPN/100mL		1	28-SEP-22
HG-T-CVAA-WP	**Water**							
Batch R5868967								
WG3766430-2 LCS								
Mercury (Hg)-Total			101.9		%		80-120	04-OCT-22
WG3766430-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-T-CVAA-WP	**Water**							
Batch R5868967								
WG3766430-1 MB								
Mercury (Hg)-Total			<0.000005C		mg/L		0.000005	04-OCT-22
MET-T-CCMS-WP	**Water**							
Batch R5870463								
WG3766304-2 LCS								
Aluminum (Al)-Total			103.0		%		80-120	05-OCT-22
Arsenic (As)-Total			102.8		%		80-120	05-OCT-22
Cadmium (Cd)-Total			104.4		%		80-120	05-OCT-22
Calcium (Ca)-Total			102.1		%		80-120	05-OCT-22
Chromium (Cr)-Total			105.9		%		80-120	05-OCT-22
Cobalt (Co)-Total			104.9		%		80-120	05-OCT-22
Copper (Cu)-Total			106.4		%		80-120	05-OCT-22
Iron (Fe)-Total			103.4		%		80-120	05-OCT-22
Lead (Pb)-Total			103.7		%		80-120	05-OCT-22
Magnesium (Mg)-Total			112.3		%		80-120	05-OCT-22
Manganese (Mn)-Total			103.7		%		80-120	05-OCT-22
Nickel (Ni)-Total			105.6		%		80-120	05-OCT-22
Potassium (K)-Total			97.6		%		80-120	05-OCT-22
Sodium (Na)-Total			108.3		%		80-120	05-OCT-22
Zinc (Zn)-Total			104.6		%		80-120	05-OCT-22
WG3766304-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	05-OCT-22
Arsenic (As)-Total			<0.00010		mg/L		0.0001	05-OCT-22
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	05-OCT-22
Calcium (Ca)-Total			<0.050		mg/L		0.05	05-OCT-22
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	05-OCT-22
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	05-OCT-22
Copper (Cu)-Total			<0.00050		mg/L		0.0005	05-OCT-22
Iron (Fe)-Total			<0.010		mg/L		0.01	05-OCT-22
Lead (Pb)-Total			<0.000050		mg/L		0.00005	05-OCT-22
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	05-OCT-22
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	05-OCT-22
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	05-OCT-22
Potassium (K)-Total			<0.050		mg/L		0.05	05-OCT-22
Sodium (Na)-Total			<0.050		mg/L		0.05	05-OCT-22

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	**Water**							
Batch R5870463								
WG3766304-1 MB								
Zinc (Zn)-Total			<0.0030		mg/L		0.003	05-OCT-22
NH3-COL-WP	**Water**							
Batch R5873856								
WG3767992-10 LCS								
Ammonia, Total (as N)			110.6		%		85-115	13-OCT-22
WG3767992-9 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	13-OCT-22
NO2-IC-N-WP	**Water**							
Batch R5867005								
WG3765420-6 LCS								
Nitrite (as N)			98.3		%		90-110	28-SEP-22
WG3765420-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	28-SEP-22
NO3-IC-N-WP	**Water**							
Batch R5867005								
WG3765420-6 LCS								
Nitrate (as N)			99.8		%		90-110	28-SEP-22
WG3765420-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	28-SEP-22
OG-GRAV-WP	**Water**							
Batch R5867249								
WG3765818-2 LCS								
Oil and Grease			86.9		%		70-130	29-SEP-22
WG3765818-1 MB								
Oil and Grease			<5.0		mg/L		5	29-SEP-22
P-T-COL-WP	**Water**							
Batch R5869456								
WG3766426-14 LCS								
Phosphorus (P)-Total			96.7		%		80-120	05-OCT-22
WG3766426-13 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	05-OCT-22
PAH-CCME-PPM-WT	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-PPM-WT	**Water**							
Batch R5869781								
WG3766486-2 LCS								
1-Methylnaphthalene			106.5		%		60-130	05-OCT-22
2-Methylnaphthalene			98.0		%		60-130	05-OCT-22
Acenaphthene			97.1		%		60-130	05-OCT-22
Acenaphthylene			99.5		%		60-130	05-OCT-22
Anthracene			95.3		%		60-130	05-OCT-22
Acridine			92.5		%		60-130	05-OCT-22
Benzo(a)anthracene			110.1		%		60-130	05-OCT-22
Benzo(a)pyrene			86.9		%		60-130	05-OCT-22
Benzo(b&j)fluoranthene			97.0		%		60-130	05-OCT-22
Benzo(g,h,i)perylene			111.5		%		60-130	05-OCT-22
Benzo(k)fluoranthene			93.0		%		60-130	05-OCT-22
Chrysene			95.8		%		60-130	05-OCT-22
Dibenz(a,h)anthracene			123.3		%		60-130	05-OCT-22
Fluoranthene			109.8		%		60-130	05-OCT-22
Fluorene			97.3		%		60-130	05-OCT-22
Indeno(1,2,3-cd)pyrene			113.0		%		60-130	05-OCT-22
Naphthalene			105.0		%		50-130	05-OCT-22
Phenanthrene			104.1		%		60-130	05-OCT-22
Pyrene			100.9		%		60-130	05-OCT-22
Quinoline			112.7		%		60-130	05-OCT-22
WG3766486-1 MB								
1-Methylnaphthalene			<0.000020		mg/L		0.00002	05-OCT-22
2-Methylnaphthalene			<0.000020		mg/L		0.00002	05-OCT-22
Acenaphthene			<0.000020		mg/L		0.00002	05-OCT-22
Acenaphthylene			<0.000020		mg/L		0.00002	05-OCT-22
Anthracene			<0.000010		mg/L		0.00001	05-OCT-22
Acridine			<0.000020		mg/L		0.00002	05-OCT-22
Benzo(a)anthracene			<0.000010		mg/L		0.00001	05-OCT-22
Benzo(a)pyrene			<0.000005(		mg/L		0.000005	05-OCT-22
Benzo(b&j)fluoranthene			<0.000010		mg/L		0.00001	05-OCT-22
Benzo(g,h,i)perylene			<0.000020		mg/L		0.00002	05-OCT-22
Benzo(k)fluoranthene			<0.000010		mg/L		0.00001	05-OCT-22
Chrysene			<0.000020		mg/L		0.00002	05-OCT-22
Dibenz(a,h)anthracene			<0.000005(		mg/L		0.000005	05-OCT-22

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-CCME-PPM-WT	**Water**							
Batch R5869781								
WG3766486-1 MB								
Fluoranthene			<0.000020		mg/L		0.00002	05-OCT-22
Fluorene			<0.000020		mg/L		0.00002	05-OCT-22
Indeno(1,2,3-cd)pyrene			<0.000010		mg/L		0.00001	05-OCT-22
Naphthalene			<0.000050		mg/L		0.00005	05-OCT-22
Phenanthrene			<0.000050		mg/L		0.00005	05-OCT-22
Pyrene			<0.000010		mg/L		0.00001	05-OCT-22
Quinoline			<0.000020		mg/L		0.00002	05-OCT-22
Surrogate: Naphthalene d8			102.0		%		50-130	05-OCT-22
Surrogate: Phenanthrene d10			109.0		%		60-130	05-OCT-22
Surrogate: Chrysene d12			113.4		%		60-130	05-OCT-22
Surrogate: Acridine d9			96.2		%		60-130	05-OCT-22
PH-WP	**Water**							
Batch R5872597								
WG3767493-7 LCS								
pH			7.06		pH units		6.9-7.1	11-OCT-22
PHENOLS-4AAP-WT	**Water**							
Batch R5870789								
WG3766870-2 LCS								
Phenols (4AAP)			112.5		%		85-115	06-OCT-22
WG3766870-1 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	06-OCT-22
COMMENTS: DLM Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). P SP Sample was Preserved at the laboratory P								
SO4-IC-N-WP	**Water**							
Batch R5867005								
WG3765420-6 LCS								
Sulfate (SO4)			101.1		%		90-110	28-SEP-22
WG3765420-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	28-SEP-22
SOLIDS-TOTSUS-WP	**Water**							
Batch R5868858								
WG3766094-8 LCS								
Total Suspended Solids			96.0		%		85-115	03-OCT-22
WG3766094-7 MB								
Total Suspended Solids			<3.0		mg/L		3	03-OCT-22

Legend:

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

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	26-SEP-22	11-OCT-22 12:00	0.25	360	hours	EHTR-FM
Anions and Nutrients							
Alkalinity, Total (as CaCO3)							
	1	26-SEP-22	11-OCT-22 12:00	14	15	days	EHT
Bacteriological Tests							
Fecal coliforms, 1:10 dilution by QT97							
	1	26-SEP-22	28-SEP-22 14:55	30	51	hours	EHTR
Aggregate Organics							
Biochemical Oxygen Demand (BOD)							
	1	26-SEP-22	29-SEP-22 07:00	48	67	hours	EHTL
Carbonaceous BOD							
	1	26-SEP-22	29-SEP-22 07:00	48	67	hours	EHTL

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2734740 were received on 28-SEP-22 08:20.

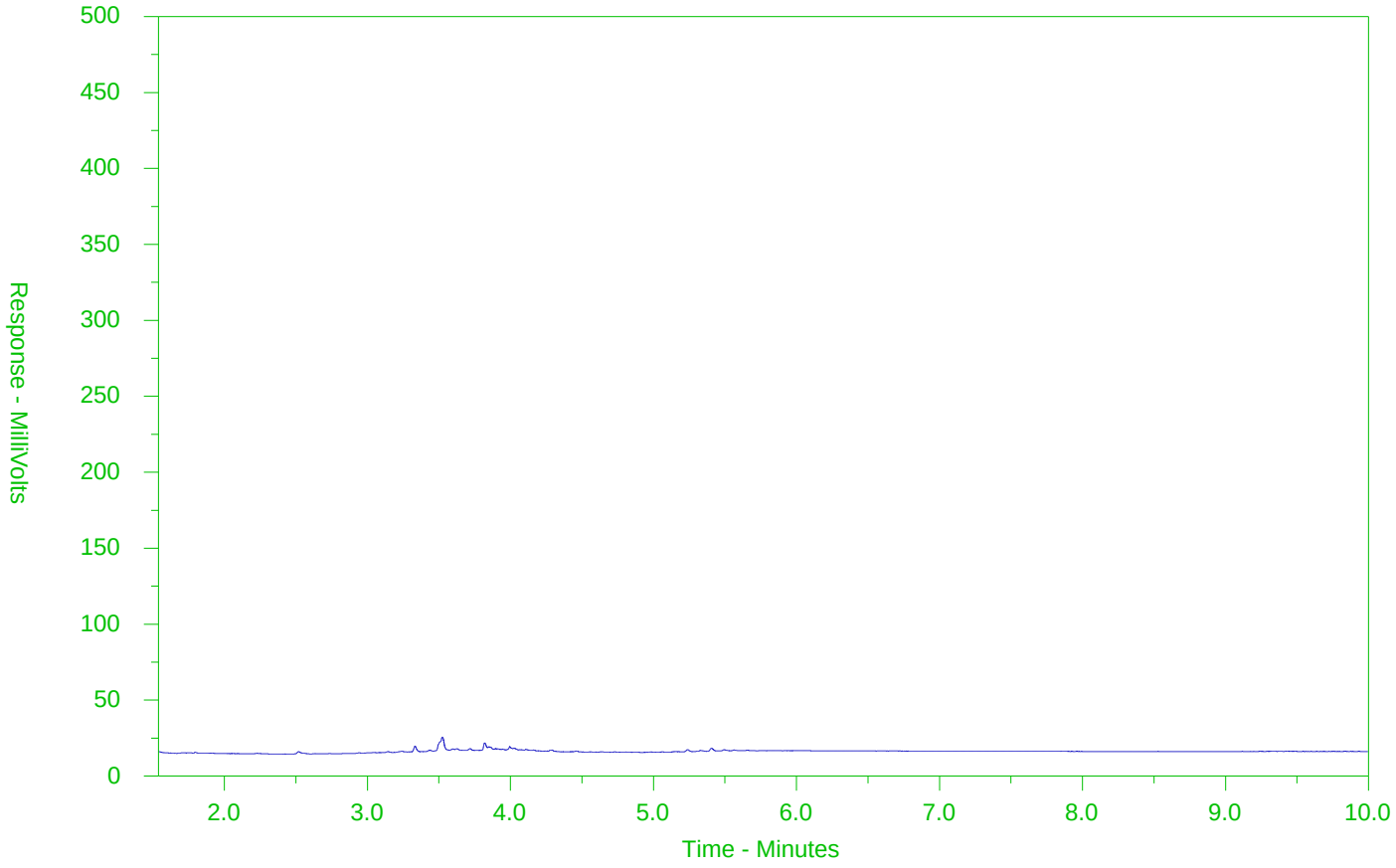
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2734740-1
Client Sample ID: WHA-3



←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 the left.

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

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 987

L2734740-COFC

COC Number: 15 -

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution		Turnaround Time (TAT) Request - Please confirm all E&P TATs with your AM - surcharges will apply	
Company:	Hamlet of Whale Cove	Select Report Format:	PDF ☑ EXCEL ☐ EDD (DIGITAL) ☐	Regular [R] ☑	Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	~~Jeani MacKenzie~~ Brian Fleming	Quality Control (QC) Report with Report	YES ☑ NO ☐	PRIORITY (Business Days) 4 day [P4] ☐	EMERGENCY 1 Business day [E1] ☐
Phone:	867-896-9961	Compare Results to Criteria on Report - provide details below if box checked	☐	3 day [P3] ☐	Same Day, Weekend or Statutory holiday [E0] ☐
	Company address below will appear on the final report	Select Distribution:	EMAIL ☑ MAIL ☐ FAX ☐	2 day [P2] ☐	
Street:	Po Box 120	Email 1 or Fax	sao@whalecove.ca	Date and Time Required for all E&P TATs:	dd-mmm-yy hh:mm
City/Province:	Whale Cove, NU	Email 2	mhewey@gov.nu.ca	For tests that can not be performed according to the service level selected, you will be contacted.	
Postal Code:	X0C 0J0	Email 3	scollins@gov.nu.ca		
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**		**Analysis Request**	
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution:	EMAIL ☑ MAIL ☐ FAX ☐	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Company:		Email 1 or Fax			
Contact:		Email 2			

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	W10623	AFE/Cost Center:	PO#:
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	Routine	CBOD	Total Metals	Total Mercury	Nutrients/Phenols (x2)	Bacteria	Oil & Grease (x2)	BTEX-F1 (x3)	F2-F4 (x2)	PAH (x2)			Number of Containers
	WHA-2			Effluent	R	R	R	R	R	R	R	R	R	R	R			17
✓	WHA-3			Effluent	R	R	R	R	R	R	R	R						10
	WHA-4			Effluent	R	R	R	R	R	R	R	R						10

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	NUNAVUT-WW-GRP1-WP, BTEX, F1-F4, PAH
Are samples for human drinking water use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

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

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
1.6					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by: O.A.	Date: SEP 28 2022	Time: 8:20am	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

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

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