ANNUAL REPORT
FOR THE HAMLET OF CORAL HARBOUR

YEAR BEING REPORTED: 2015

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License No. **3BM-COR1521** issued to the Hamlet of Coral Harbour.

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

Attached are results for Monitoring station COR-1, as well as detailed chemical, physical and biological analysis required at COR-3, COR-4 and COR-6.

Month Reported	Quantity of Water Obtained from all sources (m^3)	Quantity of Sewage Waste Discharged (Estimated, m^3)
January	3,208.95420	3,208.95420
February	3,250.01700	3,250.01700
March	3,792.47000	3,792.47000
April	3,148.41100	3,148.41100
May	3,342.13800	3,342.13800
June	3,386.80650	3,386.80650
July	3,266.22410	3,266.22410
August	3,469.81600	3,469.81600
September	3,436.55200	3,436.55200
October	3,529.77600	3,529.77600
November	3,548.46900	3,548.46900
December	3,322.41700	3,322.41700
ANNUAL TOTAL	40,702.05080	40,702.05080

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

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

- Construction for the new Water Treatment Plant was delayed; construction scheduled to begin summer 2016 and be completed by the end of 2016.
- No modifications and/or major work was carried out at the Solid Waste Site or the Sewage Treatment Facilities in 2015.
- Improved segregation is taking place at the Solid Waste Site. Batteries have been collected and are stored in battery boxes.

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

- Spills:
  - 2014173, 2014-05-22, Public housing fuel tank unit #159, heating fuel, 30L

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 2015.
- The existing Water Truck Fill Station will be demolished in 2016. The site will not be abandoned and restored because the new Water Treatment Plant will be constructed in the same location.

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;

- The Coral Harbour sewage wetlands was part of a study by Dalhousie University commissioned by GN-CGS. The *Summary of Site Specific Studies on Tundra Wetland Treatment Areas in Nunavut* report is submitted to the NWB with the Annual Report.

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

- Signage for the Monitoring Program Stations will be ordered over the winter for installation summer 2016. Pictures of the signage at Monitoring Program Stations will be included in the 2016 Annual Report.

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

- The *Operations and Maintenance Manual for Water, Sewage and Solid Waste Facilities at Coral Harbour, NU* was prepared by Nunami Stantec, 2010 and is currently being reviewed; an updated version of the O&M Manual will be submitted to the NWB in 2016.

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

- Licence 3BM-COR1521 was issued on April 24, 2015.
- The Hamlet is working with the Water Compliance Working Group to implement the Solid Waste Workplan goals.

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

- The AANDC Inspection took place on August 11, 2015.
- The following Monitoring Program Station locations were confirmed with the AANDC Inspector:

Monitoring Program Station Identification	Description	GPS Coordinates
COR-3	Effluent from Sewage Containment Cell	N64°09.790' W083°11.502'
COR-4	Station within the Wetland	N64°09.785' W083°11.326'
COR-5	Discharge from the Wetland (Compliance Point)	N64°09.718' W083°11.243'
COR-6	Run-off from the Solid Waste Disposal Facility	N64°09.722' W083°11.638
COR-7	Run-off below Waste Metals area.	N64°09.628' W083°11.541'

List of Appendixes:

Appendix A: COR-4 Effluent Quality Limits – 1 page
Appendix B: Weekly Inspections at Monitoring Stations – 1 page
Appendix C: Certificate of Analysis June 18, 2015 – 11 pages
Appendix D: Certificate of Analysis July 6, 2015 – 14 pages
Appendix E: Certificate of Analysis July 22, 2015 – 13 pages
Appendix F: Certificate of Analysis August 19, 2015 – 20 pages
Appendix G: Hazardous Materials Spill Database, Coral Harbour 2015 – 1 page

3BM-COR1521 Coral Harbour Monitoring Program Results 2015
Part D, Item 2: COR-5 Effluent Quality Limits

Parameter	Maximum Average Concentration	COR-5			
		18-Jun-15	06-Jul-15	22-Jul-15	19-Aug-15
BOD_5	30 mg/L	3.2 mg/L	12.2 mg/L	9.0 mg/L	107 mg/L
Total Suspended Solids	30 mg/L	85 mg/L	9.0 mg/L	9.0 mg/L	85 mg/L
Fecal Coliforms	$1x10^4$ CFU/100 mL	<3 MPN/100 mL	92 MPN/100 mL	2400 MPN/100 mL	2400 MPN/100 mL
Oil and Grease	No visible sheen	<2.0 mg/L	<2.0 mg/L	<2.0 mg/L	<2.0 mg/L
pH	Between 6 and 9	7.57	8.21	7.84	8.07

unavut Water Board Licence No. 3BM-COR1521

oral Harbour, NU

art H: Weekly Inspections at Monitoring Program Stations, June to August

		COR-3			COR-4			COR-5			COR-6			COR-7			
		Water Present (check)			Water Present (check)			Water Present (check)			Water Present (check)			Water Present (check)			
Week	Starting Date	Yes	No	Frozen	Yes	No	Frozen	Yes	No	Frozen	Yes	No	Frozen	Yes	No	Frozen	Checked By
1	01-Jun-15			✓			✓			✓			✓			✓	
2	08-Jun-15			✓			✓			✓			✓			✓	
3	15-Jun-15			✓			✓			✓			✓			✓	
4	22-Jun-15			✓													
5	29-Jun-15				miss the flight and next day flight cancell												
6	06-Jul-15	✓			✓					✓	✓						
7	13-Jul-15																
8	20-Jul-15																
9	27-Jul-15																
10	03-Aug-15																
11	10-Aug-15																
12	17-Aug-15																
13	24-Aug-15																
14	31-Aug-15																

onitoring Program Station Locations:

COR-3: Effluent from Sewage Containment Cell
COR-4: Station within Wetland
COR-5: Discharge from Wetland
COR-6: Run-off from the Solid Waste Disposal Facility
COR-7: Run-off below Waste metals area

Hamlet of Coral Harbour
ATTN: LEONIE PAMEOLIK
PO Box 30
Coral Harbour MB X0C 0C0

Date Received: 19-JUN-15
Report Date: 16-JUL-15 10:47 (MT)
Version: FINAL

Client Phone: 867-925-8970

Certificate of Analysis

Lab Work Order #: L1630085

Project P.O. #: NOT SUBMITTED
Job Reference: CORAL HARBOUR MONIOTORING PROGRAM
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
L1630085-1 COR-3							
Sampled By: CLIENT on 18-JUN-15 @ 09:25							
Matrix:							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	145		1.2	mg/L		07-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	0.027		0.010	mg/L		22-JUN-15	R3213664
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	6.2		2.0	mg/L		20-JUN-15	R3222375
Carbonaceous BOD							
BOD Carbonaceous	3.4		2.0	mg/L		20-JUN-15	R3222375
Chloride in Water by IC							
Chloride (Cl)	11.4		0.50	mg/L		22-JUN-15	R3215924
Conductivity							
Conductivity	251		1.0	umhos/cm		03-JUL-15	R3220935
Fecal Coliform							
Fecal Coliforms	9	RRR	3	MPN/100mL		19-JUN-15	R3213494
Note: ABL-Approximate Result.Reults might be biased low due to waterbath temperature being							
MBHT-The APHA 30 hour hold time was exceeded for microbiological testing. Samples processed within 48 hours from time of sampling may be valid in some cases (refer to Health Canada guidance).							
Hardness Calculated							
Hardness (as CaCO3)	114		0.30	mg/L		02-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	26-JUN-15	26-JUN-15	R3215797
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		22-JUN-15	R3215924
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		27-JUN-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-JUN-15	R3215924
Oil and Grease, Total							
Oil and Grease, Total	2.4		2.0	mg/L	26-JUN-15	26-JUN-15	R3216311
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		02-JUL-15	R3219157
Phosphorus, Total							
Phosphorus (P)-Total	0.212		0.010	mg/L		26-JUN-15	R3215537
Sulfate in Water by IC							
Sulfate (SO4)	7.43		0.30	mg/L		22-JUN-15	R3215924
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	119		1.0	mg/L		03-JUL-15	R3220935
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0370		0.0050	mg/L	25-JUN-15	30-JUN-15	R3217980
Arsenic (As)-Total	0.00058		0.00020	mg/L	25-JUN-15	30-JUN-15	R3217980
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	25-JUN-15	30-JUN-15	R3217980
Calcium (Ca)-Total	40.1		0.10	mg/L	25-JUN-15	30-JUN-15	R3217980
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	25-JUN-15	30-JUN-15	R3217980
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	25-JUN-15	30-JUN-15	R3217980

* 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
L1630085-1 COR-3							
Sampled By: CLIENT on 18-JUN-15 @ 09:25							
Matrix:							
Total Metals by ICP-MS							
Copper (Cu)-Total	0.00083		0.00020	mg/L	25-JUN-15	30-JUN-15	R3217980
Iron (Fe)-Total	0.68		0.10	mg/L	25-JUN-15	30-JUN-15	R3217980
Lead (Pb)-Total	0.000210		0.000090	mg/L	25-JUN-15	30-JUN-15	R3217980
Magnesium (Mg)-Total	3.44		0.010	mg/L	25-JUN-15	30-JUN-15	R3217980
Manganese (Mn)-Total	0.0867		0.00030	mg/L	25-JUN-15	30-JUN-15	R3217980
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	25-JUN-15	30-JUN-15	R3217980
Potassium (K)-Total	5.54		0.020	mg/L	25-JUN-15	30-JUN-15	R3217980
Sodium (Na)-Total	8.65		0.030	mg/L	25-JUN-15	30-JUN-15	R3217980
Zinc (Zn)-Total	0.0030		0.0020	mg/L	25-JUN-15	30-JUN-15	R3217980
Total Organic Carbon							
Total Organic Carbon	6.1		1.0	mg/L		15-JUL-15	R3226792
Total Suspended Solids							
Total Suspended Solids	5.0		5.0	mg/L		25-JUN-15	R3215627
pH							
pH	7.62		0.10	pH units		03-JUL-15	R3220935
L1630085-2 COR-4							
Sampled By: CLIENT on 18-JUN-15 @ 10:04							
Matrix:							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	79.1		1.2	mg/L		07-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		07-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		07-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	<0.010		0.010	mg/L		22-JUN-15	R3213664
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	3.2		2.0	mg/L		20-JUN-15	R3222375
Carbonaceous BOD							
BOD Carbonaceous	3.3		2.0	mg/L		20-JUN-15	R3222375
Chloride in Water by IC							
Chloride (Cl)	2.55		0.50	mg/L		22-JUN-15	R3215924
Conductivity							
Conductivity	164		1.0	umhos/cm		03-JUL-15	R3220935
Fecal Coliform							
Fecal Coliforms	<3	RRR	3	MPN/100mL		19-JUN-15	R3213494
Note: ABL-Approximate Result.Reults might be biased low due to waterbath temperature being above range by 0.1°							
MBHT-The APHA 30 hour hold time was exceeded for microbiological testing. Samples processed within 48 hours from time of sampling may be valid in some cases (refer to Health Canada guidance).							
Hardness Calculated							
Hardness (as CaCO3)	82.1		0.30	mg/L		03-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	26-JUN-15	26-JUN-15	R3215797
Nitrate in Water by IC							
Nitrate (as N)	0.073		0.020	mg/L		22-JUN-15	R3215924

* 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
L1630085-2 COR-4							
Sampled By: CLIENT on 18-JUN-15 @ 10:04							
Matrix:							
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.073		0.070	mg/L		27-JUN-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-JUN-15	R3215924
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	26-JUN-15	26-JUN-15	R3216311
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		02-JUL-15	R3219157
Phosphorus, Total							
Phosphorus (P)-Total	0.104		0.010	mg/L		26-JUN-15	R3215537
Sulfate in Water by IC							
Sulfate (SO4)	19.3		0.30	mg/L		22-JUN-15	R3215924
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	64.8		1.0	mg/L		03-JUL-15	R3220935
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0407		0.0050	mg/L	29-JUN-15	02-JUL-15	R3218775
Arsenic (As)-Total	0.00034		0.00020	mg/L	29-JUN-15	02-JUL-15	R3218775
Cadmium (Cd)-Total	0.000053		0.000010	mg/L	29-JUN-15	02-JUL-15	R3218775
Calcium (Ca)-Total	30.5		0.10	mg/L	29-JUN-15	02-JUL-15	R3218775
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	29-JUN-15	02-JUL-15	R3218775
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	29-JUN-15	02-JUL-15	R3218775
Copper (Cu)-Total	0.00274		0.00020	mg/L	29-JUN-15	02-JUL-15	R3218775
Iron (Fe)-Total	0.49		0.10	mg/L	29-JUN-15	02-JUL-15	R3218775
Lead (Pb)-Total	0.000583		0.000090	mg/L	29-JUN-15	02-JUL-15	R3218775
Magnesium (Mg)-Total	1.46		0.010	mg/L	29-JUN-15	02-JUL-15	R3218775
Manganese (Mn)-Total	0.0407		0.00030	mg/L	29-JUN-15	02-JUL-15	R3218775
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	29-JUN-15	02-JUL-15	R3218775
Potassium (K)-Total	2.18		0.020	mg/L	29-JUN-15	02-JUL-15	R3218775
Sodium (Na)-Total	2.27		0.030	mg/L	29-JUN-15	02-JUL-15	R3218775
Zinc (Zn)-Total	0.0524		0.0020	mg/L	29-JUN-15	02-JUL-15	R3218775
Total Organic Carbon							
Total Organic Carbon	4.4		1.0	mg/L		15-JUL-15	R3226792
Total Suspended Solids							
Total Suspended Solids	<5.0		5.0	mg/L		25-JUN-15	R3215627
pH							
pH	7.57		0.10	pH units		03-JUL-15	R3220935
L1630085-3 COR-6 FROZEN PERMAFROST							
Sampled By: CLIENT on 18-JUN-15							
Matrix:							
Miscellaneous Parameters							
Sample Comment	Sample Not Received					19-JUN-15	

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRR	Refer to Report Remarks for issues regarding this analysis

Test Method References:

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

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

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

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

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

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

ALK-TITR-WP	Water	Total Alkalinity 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-5 day Incub.-O2 electrode

A sample of water is incubated for 5 days at 20 degrees Celcius. Comparison of dissolved oxygen content at beginning and end of incubation provides a measure of Biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis.

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

The sample is incubated for 5 days at 20 degrees Celcius. Comparison of dissolved oxygen content at the beginning and end of incubation provides a measure of biochemical oxygen demand. If carbonaceous BOD is requested, TCMP is added to the sample to chemically inhibit nitrogenous oxygen demand. If soluble BOD is requested, the sample is filtered prior to analysis. Surface waters have a DL of 1 mg/L. Effluents are diluted according to their history and will have a sample DL of 6 mg/L or greater, depending on the dilutions used.

C-TOT-ORG-WP	Water	Total Organic Carbon	APHA 5310 B-INSTRUMENTAL-WP

This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide.

The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC.
TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.

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

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

EC-WP	Water	Conductivity	APHA 2510B

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

ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0
Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.			
MET-T-L-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-TL
This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
OGG-TOT-WT	Water	Oil and Grease, Total	APHA 5520 B
Sample is extracted with hexane, extract is then evaporated and the residue is weighed to determine total oil and grease.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SAMPNOTRECD-ONREP-WP	Misc.	Sample not received	SAMPLE NOT RECEIVED
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			

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

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

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

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

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

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

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1630085-COFC

COC Number: 14 - 454487

Page 1 of 1

Report To		Report Format /		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	HAMLET OF Coral Harbour	Select Report Format:	☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Leonie Pemeelik	Quality Control (QC) Report with Report	☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	PO Box 30 Coral Harbour Nu X0C-0C0	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
		Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
Phone:	867 925 8867 Fax (867) 925 8233	Email 1 or Fax	Munch@qiniq.com	Specify Date Required for E2,E or P:
		Email 2		

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No		
	Copy of Invoice with Report ☑ Yes ☐ No	Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Company:	W10672	Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	Coral Harbour Monitoring Program	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: Shantel	Sampler:

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BoD	Routine	Metals	Nutrients	Phenols	Bacteria	Oil + Grease	PAH	BTEX, F1	F2-F4	Number of Containers
	Cor-3	17JUN15	9:05		✓	✓	P	P	P	P	P	P			8
	Cor-4	18JUN15	10:04		✓	✓	P	P	P	P	P	P			8
	Cor-6 Frozen Permafrost														0

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	11°C.
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

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

INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	June 18/15	825Am		6/19/15	4:30			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-032ab v6d Front/05 October 2013

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.

L1630085-COFC

Field Log

Name of Sampler(s): Cory | George

Date of Sampling: June 18/15

Time of Sampling: 10:04

Monitoring Station Number: Cor-4

GPS Coordinates: N 64° 9' 49" W 83° 11' 13"

Weather Conditions: Sunny Partly cloudy

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres
- [ ] 1 L Amber PAH + Pres
- [ ] **3 x** 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

_____

_____

_____

_____

_____

L1630085-COFC

Field Log

Name of Sampler(s): Casey / George

Date of Sampling: June 18/ 15

Time of Sampling: ~~9:25 Am~~ 9:25 Am

Monitoring Station Number: Cor - 3

GPS Coordinates: N 64 ° 09 ' 720 " W 83 ° 11 ' 624 "

Weather Conditions: Partly Cloudy Sunny.

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres
- [ ] 1 L Amber PAH + Pres
- [ ] **3 x** 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

Some Snow on the ground and sampling area
Thaw right at.

L1630085-COFC

Field Log

Name of Sampler(s): Casey George

Date of Sampling: June 18/15

Time of Sampling: 10:45 Am

Monitoring Station Number: Cor-6

GPS Coordinates: N 64° 9' 43" W 83° 11' 38"

Weather Conditions: Sunny Partly Cloudy

Samples:

- [ ] 500 mL BOD
- [ ] 1 L Routine
- [ ] 250 mL Metals + Pres
- [ ] 40 mL Glass Mercury Vial + Pres
- [ ] 250 mL Amber Nutrients + Pres
- [ ] 250 mL Amber Phenols + Pres
- [ ] 125 mL Sterile Bacteria Bottle
- [ ] **2 x** 500 mL Glass Oil & Grease + Pres
- [ ] 1 L Amber PAH + Pres
- [ ] **3 x** 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

We couldn't get any samples due to No leakage and Frozen Perma-Frost. The Culvert is Frozen. No Sampling on it.

Hamlet of Coral Harbour
ATTN: LEONIE PAMEOLIK
PO Box 30
Coral Harbour MB X0C 0C0

Date Received: 08-JUL-15
Report Date: 28-JUL-15 13:39 (MT)
Version: FINAL

Client Phone: 867-925-8970

Certificate of Analysis

Lab Work Order #: L1639230

Project P.O. #: NOT SUBMITTED
Job Reference: CORAL HARBOUR MONITORING PROGRAM
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
L1639230-1 COR-3							
Sampled By: CASEY P on 06-JUL-15 @ 09:00							
Matrix: WW							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	92.8		1.2	mg/L		17-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		17-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		17-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	0.010		0.010	mg/L		09-JUL-15	R3222633
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	3.9		2.0	mg/L		09-JUL-15	R3228448
Carbonaceous BOD							
BOD Carbonaceous	4.3		2.0	mg/L		09-JUL-15	R3228448
Chloride in Water by IC							
Chloride (Cl)	4.66		0.50	mg/L		09-JUL-15	R3227080
Conductivity							
Conductivity	322		1.0	umhos/cm		16-JUL-15	R3227973
Fecal Coliform							
Fecal Coliforms	<3	PEHR	3	MPN/100mL		08-JUL-15	R3226934
Hardness Calculated							
Hardness (as CaCO3)	151		0.30	mg/L		14-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	15-JUL-15	15-JUL-15	R3226470
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-JUL-15	R3227080
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		16-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-JUL-15	R3227080
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	10-JUL-15	10-JUL-15	R3224292
Phenol (4AAP)							
Phenols (4AAP)	0.0015		0.0010	mg/L		15-JUL-15	R3226870
Phosphorus, Total							
Phosphorus (P)-Total	0.172		0.010	mg/L		15-JUL-15	R3226596
Sulfate in Water by IC							
Sulfate (SO4)	79.2		0.30	mg/L		09-JUL-15	R3227080
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	76.1		1.0	mg/L		16-JUL-15	R3227973
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0324		0.0050	mg/L	13-JUL-15	13-JUL-15	R3225013
Arsenic (As)-Total	0.00055		0.00020	mg/L	13-JUL-15	13-JUL-15	R3225013
Cadmium (Cd)-Total	0.000016		0.000010	mg/L	13-JUL-15	13-JUL-15	R3225013
Calcium (Ca)-Total	54.1		0.10	mg/L	13-JUL-15	13-JUL-15	R3225013
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	13-JUL-15	13-JUL-15	R3225013
Cobalt (Co)-Total	0.00039		0.00020	mg/L	13-JUL-15	13-JUL-15	R3225013
Copper (Cu)-Total	0.00629		0.00020	mg/L	13-JUL-15	13-JUL-15	R3225013
Iron (Fe)-Total	0.72		0.10	mg/L	13-JUL-15	13-JUL-15	R3225013
Lead (Pb)-Total	0.000408		0.000090	mg/L	13-JUL-15	13-JUL-15	R3225013
Magnesium (Mg)-Total	3.79		0.010	mg/L	13-JUL-15	13-JUL-15	R3225013
Manganese (Mn)-Total	0.0611		0.00030	mg/L	13-JUL-15	13-JUL-15	R3225013
Nickel (Ni)-Total	0.0023		0.0020	mg/L	13-JUL-15	13-JUL-15	R3225013

* 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
L1639230-1 COR-3							
Sampled By: CASEY P on 06-JUL-15 @ 09:00							
Matrix: WW							
Total Metals by ICP-MS							
Potassium (K)-Total	3.81		0.020	mg/L	13-JUL-15	13-JUL-15	R3225013
Sodium (Na)-Total	5.65		0.030	mg/L	13-JUL-15	13-JUL-15	R3225013
Zinc (Zn)-Total	0.0270		0.0020	mg/L	13-JUL-15	13-JUL-15	R3225013
Total Organic Carbon							
Total Organic Carbon	17.8		1.0	mg/L		27-JUL-15	R3233869
Total Suspended Solids							
Total Suspended Solids	8.0		5.0	mg/L		13-JUL-15	R3225563
pH							
pH	8.05		0.10	pH units		16-JUL-15	R3227973
L1639230-2 COR-4							
Sampled By: CASEY P on 06-JUL-15 @ 10:00							
Matrix: WW							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	219		1.2	mg/L		17-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		17-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		17-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	<0.010		0.010	mg/L		10-JUL-15	R3225079
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	12.2		2.0	mg/L		09-JUL-15	R3228448
Carbonaceous BOD							
BOD Carbonaceous	7.6		2.0	mg/L		09-JUL-15	R3228448
Chloride in Water by IC							
Chloride (Cl)	22.8		0.50	mg/L		09-JUL-15	R3227080
Conductivity							
Conductivity	422		1.0	umhos/cm		16-JUL-15	R3227973
Fecal Coliform							
Fecal Coliforms	92	PEHR	3	MPN/100mL		08-JUL-15	R3226934
Hardness Calculated							
Hardness (as CaCO3)	184		0.30	mg/L		14-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	15-JUL-15	15-JUL-15	R3226470
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-JUL-15	R3227080
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		16-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-JUL-15	R3227080
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	10-JUL-15	10-JUL-15	R3224292
Phenol (4AAP)							
Phenols (4AAP)	0.0034		0.0010	mg/L		15-JUL-15	R3226870
Phosphorus, Total							
Phosphorus (P)-Total	0.440		0.010	mg/L		15-JUL-15	R3226596
Sulfate in Water by IC							
Sulfate (SO4)	12.2		0.30	mg/L		09-JUL-15	R3227080
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	180		1.0	mg/L		16-JUL-15	R3227973

* 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
L1639230-2 COR-4							
Sampled By: CASEY P on 06-JUL-15 @ 10:00							
Matrix: WW							
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.123		0.0050	mg/L	13-JUL-15	13-JUL-15	R3225013
Arsenic (As)-Total	0.00081		0.00020	mg/L	13-JUL-15	13-JUL-15	R3225013
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	13-JUL-15	13-JUL-15	R3225013
Calcium (Ca)-Total	62.5		0.10	mg/L	13-JUL-15	13-JUL-15	R3225013
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	13-JUL-15	13-JUL-15	R3225013
Cobalt (Co)-Total	0.00021		0.00020	mg/L	13-JUL-15	13-JUL-15	R3225013
Copper (Cu)-Total	0.00257		0.00020	mg/L	13-JUL-15	13-JUL-15	R3225013
Iron (Fe)-Total	0.89		0.10	mg/L	13-JUL-15	13-JUL-15	R3225013
Lead (Pb)-Total	0.000555		0.000090	mg/L	13-JUL-15	13-JUL-15	R3225013
Magnesium (Mg)-Total	6.73		0.010	mg/L	13-JUL-15	13-JUL-15	R3225013
Manganese (Mn)-Total	0.114		0.00030	mg/L	13-JUL-15	13-JUL-15	R3225013
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	13-JUL-15	13-JUL-15	R3225013
Potassium (K)-Total	5.83		0.020	mg/L	13-JUL-15	13-JUL-15	R3225013
Sodium (Na)-Total	18.6		0.030	mg/L	13-JUL-15	13-JUL-15	R3225013
Zinc (Zn)-Total	0.0109		0.0020	mg/L	13-JUL-15	13-JUL-15	R3225013
Total Organic Carbon							
Total Organic Carbon	27.2		1.0	mg/L		27-JUL-15	R3233869
Total Suspended Solids							
Total Suspended Solids	9.0		5.0	mg/L		13-JUL-15	R3225563
pH							
pH	8.21		0.10	pH units		16-JUL-15	R3227973
L1639230-3 COR-6							
Sampled By: CASEY P on 06-JUL-15 @ 11:00							
Matrix: WW							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		11-JUL-15	R3225360
Toluene	0.0231		0.0010	mg/L		11-JUL-15	R3225360
Ethyl benzene	<0.00050		0.00050	mg/L		11-JUL-15	R3225360
o-Xylene	<0.00050		0.00050	mg/L		11-JUL-15	R3225360
m+p-Xylenes	<0.00050		0.00050	mg/L		11-JUL-15	R3225360
F1 (C6-C10)	<0.10		0.10	mg/L		11-JUL-15	R3225360
Surrogate: 4-Bromofluorobenzene (SS)	85.3		70-130	%		11-JUL-15	R3225360
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		16-JUL-15	
F2-Naphth	0.80		0.25	mg/L		16-JUL-15	
F3-PAH	4.62		0.25	mg/L		16-JUL-15	
Total Hydrocarbons (C6-C50)	6.51		0.44	mg/L		16-JUL-15	
F2-F4 PHC method							
F2 (C10-C16)	0.80		0.25	mg/L	09-JUL-15	10-JUL-15	R3224600
F3 (C16-C34)	4.62		0.25	mg/L	09-JUL-15	10-JUL-15	R3224600
F4 (C34-C50)	1.09		0.25	mg/L	09-JUL-15	10-JUL-15	R3224600
Surrogate: 2-Bromobenzotrifluoride	114.5		60-140	%	09-JUL-15	10-JUL-15	R3224600
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		14-JUL-15	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586
Acenaphthene	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586
Acenaphthylene	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586

* 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
L1639230-3 COR-6							
Sampled By: CASEY P on 06-JUL-15 @ 11:00							
Matrix: WW							
Polyaromatic Hydrocarbons (PAHs)							
Anthracene	<0.000010		0.000010	mg/L	09-JUL-15	09-JUL-15	R3221586
Acridine	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586
Benzo(a)anthracene	<0.000010		0.000010	mg/L	09-JUL-15	09-JUL-15	R3221586
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	09-JUL-15	09-JUL-15	R3221586
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	09-JUL-15	09-JUL-15	R3221586
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	09-JUL-15	09-JUL-15	R3221586
Chrysene	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	09-JUL-15	09-JUL-15	R3221586
Fluoranthene	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586
Fluorene	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	09-JUL-15	09-JUL-15	R3221586
Naphthalene	<0.000050		0.000050	mg/L	09-JUL-15	09-JUL-15	R3221586
Phenanthrene	<0.000050		0.000050	mg/L	09-JUL-15	09-JUL-15	R3221586
Pyrene	<0.000010		0.000010	mg/L	09-JUL-15	09-JUL-15	R3221586
Quinoline	<0.000020		0.000020	mg/L	09-JUL-15	09-JUL-15	R3221586
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	09-JUL-15	09-JUL-15	R3221586
Surrogate: Acenaphthene d10	76.0		40-130	%	09-JUL-15	09-JUL-15	R3221586
Surrogate: Acridine d9	78.3		40-130	%	09-JUL-15	09-JUL-15	R3221586
Surrogate: Chrysene d12	73.3		40-130	%	09-JUL-15	09-JUL-15	R3221586
Surrogate: Naphthalene d8	109.3		40-130	%	09-JUL-15	09-JUL-15	R3221586
Surrogate: Phenanthrene d10	68.4		40-130	%	09-JUL-15	09-JUL-15	R3221586
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	398		1.2	mg/L		17-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		17-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		17-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	48.0	DLA	1.0	mg/L		09-JUL-15	R3222633
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	114	DLA	20	mg/L		09-JUL-15	R3228448
Carbonaceous BOD							
BOD Carbonaceous	100	DLA	20	mg/L		09-JUL-15	R3228448
Chloride in Water by IC							
Chloride (Cl)	50.1		0.50	mg/L		09-JUL-15	R3227080
Conductivity							
Conductivity	832		1.0	umhos/cm		16-JUL-15	R3227973
Fecal Coliform							
Fecal Coliforms	>110000	PEHR	3	MPN/100mL		08-JUL-15	R3226934
Hardness Calculated							
Hardness (as CaCO3)	100		0.30	mg/L		14-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.00080	DLM	0.00080	mg/L	15-JUL-15	15-JUL-15	R3226470
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		09-JUL-15	R3227080
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		16-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		09-JUL-15	R3227080
Oil and Grease, Total							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1639230-3 COR-6							
Sampled By: CASEY P on 06-JUL-15 @ 11:00							
Matrix: WW							
Oil and Grease, Total							
Oil and Grease, Total	6.2		2.0	mg/L	11-JUL-15	11-JUL-15	R3224999
Phenol (4AAP)							
Phenols (4AAP)	0.0310		0.0010	mg/L		15-JUL-15	R3226870
Phosphorus, Total							
Phosphorus (P)-Total	9.32	DLA	0.20	mg/L		15-JUL-15	R3226596
Sulfate in Water by IC							
Sulfate (SO4)	5.33		0.30	mg/L		09-JUL-15	R3227080
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	326		1.0	mg/L		16-JUL-15	R3227973
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0763		0.0050	mg/L	13-JUL-15	13-JUL-15	R3225013
Arsenic (As)-Total	0.00075		0.00020	mg/L	13-JUL-15	13-JUL-15	R3225013
Cadmium (Cd)-Total	0.000095		0.000010	mg/L	13-JUL-15	13-JUL-15	R3225013
Calcium (Ca)-Total	32.6		0.10	mg/L	13-JUL-15	13-JUL-15	R3225013
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	13-JUL-15	13-JUL-15	R3225013
Cobalt (Co)-Total	0.00064		0.00020	mg/L	13-JUL-15	13-JUL-15	R3225013
Copper (Cu)-Total	0.0322		0.00020	mg/L	13-JUL-15	13-JUL-15	R3225013
Iron (Fe)-Total	0.42		0.10	mg/L	13-JUL-15	13-JUL-15	R3225013
Lead (Pb)-Total	0.00100		0.000090	mg/L	13-JUL-15	13-JUL-15	R3225013
Magnesium (Mg)-Total	4.58		0.010	mg/L	13-JUL-15	13-JUL-15	R3225013
Manganese (Mn)-Total	0.0731		0.00030	mg/L	13-JUL-15	13-JUL-15	R3225013
Nickel (Ni)-Total	0.0027		0.0020	mg/L	13-JUL-15	13-JUL-15	R3225013
Potassium (K)-Total	19.6		0.020	mg/L	13-JUL-15	13-JUL-15	R3225013
Sodium (Na)-Total	41.9		0.030	mg/L	13-JUL-15	13-JUL-15	R3225013
Zinc (Zn)-Total	0.0390		0.0020	mg/L	13-JUL-15	13-JUL-15	R3225013
Total Organic Carbon							
Total Organic Carbon	87.1		1.0	mg/L		27-JUL-15	R3233869
Total Suspended Solids							
Total Suspended Solids	46.0		5.0	mg/L		13-JUL-15	R3225563
pH							
pH	7.93		0.10	pH units		16-JUL-15	R3227973

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
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	Total Alkalinity 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-TOT-ORG-WP	Water	Total Organic Carbon	APHA 5310 B-INSTRUMENTAL-WP

This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide.

The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC.
TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.

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

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

EC-WP	Water	Conductivity	APHA 2510B

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

ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(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	F2-F4 PHC method	CWS (CCME)

Petroleum Hydrocarbons (F2-F4) in Water Method is adapted from US EPA Method 3511: Organic Compounds in Water by Micro-extraction" (Nov 2002) with instrumental analysis as per the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method" (CCMS, Dec 2000) Water samples (in their entirety) are extracted using hexane prior to capillary column gas chromatography with flame ionization detection (GC/FID).

FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

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

HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0

Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.

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

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

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

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

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

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

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

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

OGG-TOT-WT	Water	Oil and Grease, Total	APHA 5520 B

Sample is extracted with hexane, extract is then evaporated and the residue is weighed to determine total oil and grease.

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 Information

Test Method References:

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

Chain of Custody Numbers:

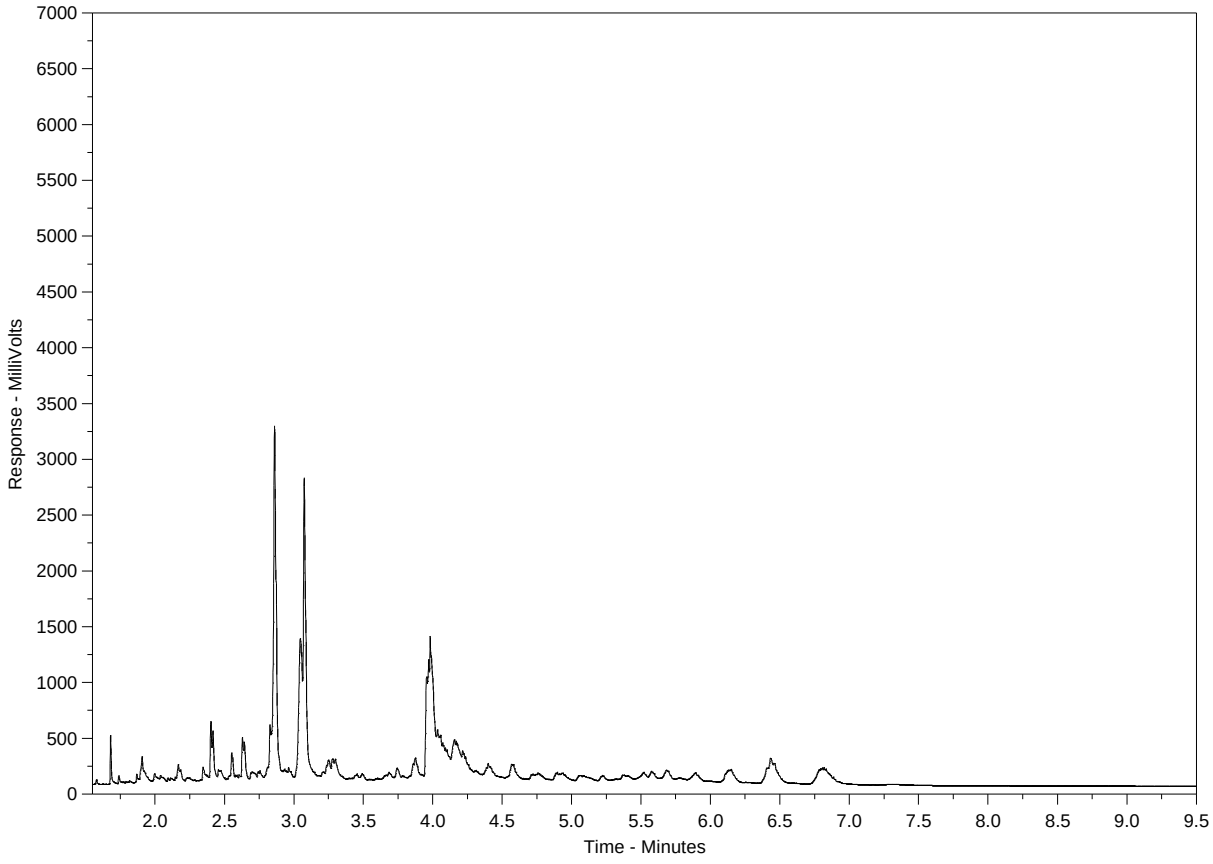
GLOSSARY OF REPORT TERMS

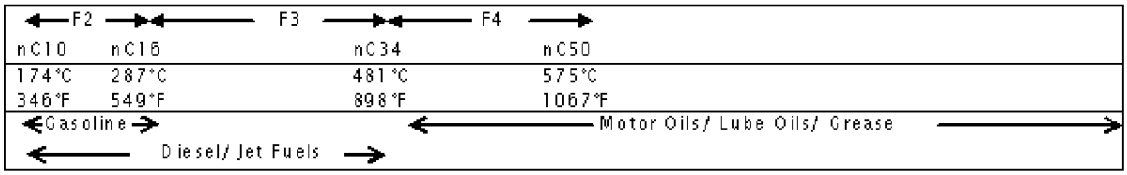
Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1639230-3
Client Sample ID: COR-6





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

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

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

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

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1639230-COFC

COC Number: 14 - 454539

Page 1 of 1

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	HAMLET of Coral Harbour	Select Report Format:	☑ PDF ☐ EXCEL ☑ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Leonie PAMEOLIK	Quality Control (QC) Report with Report	☑ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	PO Box 30 Coral Harbour, NUXOC-0C0	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	(867) 925 8867	Select Distribution:	☐ EMAIL ☐ MAIL ☑ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	Munch@qiniq.com	Specify Date Required for E2,E or P:
		Email 2		

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☑ Yes ☐ No	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Coral Harbour Monitoring Program	Approver ID:	Cost Center:
Job #:		GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)	ALS Contact: Paul Nichols	Sampler: Casey Pongo

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Bod	Routine	Metals	Nutrients	Phenols	Oil + Grease	PAH	BTEX + F1	F2 - F4	Number of Containers
	Cor-3	06 07 15	900	Wastewater	✓	✓	✓	✓	✓	✓	✓	✓		8
	Cor-4	06 07 15	1000	Wastewater	✓	✓	✓	✓	✓	✓	✓	✓		8
	Cor-6	06 07 15	1100	Wastewater	✓	✓	✓	✓	✓	✓	✓	✓	✓	14

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	10°C
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

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

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Casey Pongo	July 6/15				2:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS FM-03284 v08 Front/03 October 2013

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.

Field Log

Name of Sampler(s): Casey Lamb

Date of Sampling: July 6/15

Time of Sampling: 900

Monitoring Station Number: Cor-3

GPS Coordinates: N 64 ° 09 ' 38.6" W 083 ° 11 ' 33.6

Weather Conditions: Sunny

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres
- [ ] 1 L Amber PAH + Pres
- [ ] ~~3~~ **x** 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

L1639230-COFC

Field Log

Name of Sampler(s): Carley Pennycook

Date of Sampling: ~~11:00~~ July 6/15

Time of Sampling: ~~Cor-6~~ 11:00

Monitoring Station Number: Cor-6

GPS Coordinates: N 64 ° 09' 77.7" W 083 ° 11' 49.2"

Weather Conditions: Sunny

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres
- [x] 1 L Amber PAH + Pres
- [x] ~~3 x~~ 40 mL BTEX, F1 Vials + Pres
- [x] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

Field Log

Name of Sampler(s): Casey

Date of Sampling: July 6/15

Time of Sampling: 1000

Monitoring Station Number: Cor-4

GPS Coordinates: N 64 ° 09 ' 38.6" W 083 ° 11 ' 73.6

Weather Conditions: Sunny

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres

- [ ] 1 L Amber PAH + Pres
- [ ] ~~3~~ **x** 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

_____

_____

_____

_____

_____

Hamlet of Coral Harbour
ATTN: LEONIE PAMEOLIK
PO Box 30
Coral Harbour MB X0C 0C0

Date Received: 24-JUL-15
Report Date: 06-AUG-15 13:35 (MT)
Version: FINAL

Client Phone: 867-925-8867

Certificate of Analysis

Lab Work Order #: L1647683

Project P.O. #: NOT SUBMITTED
Job Reference: CORAAL HARBOUR MONITORING PROGRAM
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
L1647683-1 COR-3							
Sampled By: CASEY P on 22-JUL-15 @ 09:00							
Matrix: WATER							
Miscellaneous Parameters							
Total Organic Carbon	20.3		1.0	mg/L		29-JUL-15	R3235215
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	131		1.2	mg/L		31-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		31-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		31-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	0.036		0.010	mg/L		24-JUL-15	R3232895
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	6.8		2.0	mg/L		24-JUL-15	R3235808
Carbonaceous BOD							
BOD Carbonaceous	2.8		2.0	mg/L		24-JUL-15	R3235808
Chloride in Water by IC							
Chloride (Cl)	7.27		0.50	mg/L		25-JUL-15	R3233612
Conductivity							
Conductivity	620		1.0	umhos/cm		30-JUL-15	R3236541
Fecal Coliform							
Fecal Coliforms	<3	PEHR	3	MPN/100mL		24-JUL-15	R3235397
Hardness Calculated							
Hardness (as CaCO3)	330		0.30	mg/L		29-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	28-JUL-15	28-JUL-15	R3234932
Nitrate in Water by IC							
Nitrate (as N)	0.025		0.020	mg/L		25-JUL-15	R3233612
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		28-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		25-JUL-15	R3233612
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	28-JUL-15	28-JUL-15	R3234358
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		05-AUG-15	R3239267
Phosphorus, Total							
Phosphorus (P)-Total	0.317		0.010	mg/L		29-JUL-15	R3234756
Sulfate in Water by IC							
Sulfate (SO4)	193		0.30	mg/L		25-JUL-15	R3233612
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	107		1.0	mg/L		30-JUL-15	R3236541
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0178		0.0050	mg/L	28-JUL-15	28-JUL-15	R3234373
Arsenic (As)-Total	0.00061		0.00020	mg/L	28-JUL-15	28-JUL-15	R3234373
Cadmium (Cd)-Total	0.000016		0.000010	mg/L	28-JUL-15	28-JUL-15	R3234373
Calcium (Ca)-Total	120		0.10	mg/L	28-JUL-15	28-JUL-15	R3234373
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	28-JUL-15	28-JUL-15	R3234373
Cobalt (Co)-Total	0.00036		0.00020	mg/L	28-JUL-15	28-JUL-15	R3234373
Copper (Cu)-Total	0.00318		0.00020	mg/L	28-JUL-15	28-JUL-15	R3234373
Iron (Fe)-Total	1.22		0.10	mg/L	28-JUL-15	28-JUL-15	R3234373
Lead (Pb)-Total	0.000360		0.000090	mg/L	28-JUL-15	28-JUL-15	R3234373
Magnesium (Mg)-Total	7.24		0.010	mg/L	28-JUL-15	28-JUL-15	R3234373
Manganese (Mn)-Total	0.0689		0.00030	mg/L	28-JUL-15	28-JUL-15	R3234373

* 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
L1647683-1 COR-3							
Sampled By: CASEY P on 22-JUL-15 @ 09:00							
Matrix: WATER							
Total Metals by ICP-MS							
Nickel (Ni)-Total	0.0027		0.0020	mg/L	28-JUL-15	28-JUL-15	R3234373
Potassium (K)-Total	5.82		0.020	mg/L	28-JUL-15	28-JUL-15	R3234373
Sodium (Na)-Total	10.5		0.030	mg/L	28-JUL-15	28-JUL-15	R3234373
Zinc (Zn)-Total	0.0639		0.0020	mg/L	28-JUL-15	28-JUL-15	R3234373
Total Suspended Solids							
Total Suspended Solids	10.0		5.0	mg/L		27-JUL-15	R3234080
pH							
pH	7.98		0.10	pH units		30-JUL-15	R3236541
L1647683-2 COR-4							
Sampled By: CASEY P on 22-JUL-15 @ 09:30							
Matrix: WATER							
Miscellaneous Parameters							
Total Organic Carbon	28.5		1.0	mg/L		29-JUL-15	R3235215
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	222		1.2	mg/L		31-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		31-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		31-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	0.035		0.010	mg/L		24-JUL-15	R3232895
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	9.0		2.0	mg/L		25-JUL-15	R3238368
Carbonaceous BOD							
BOD Carbonaceous	4.6		2.0	mg/L		25-JUL-15	R3238368
Chloride in Water by IC							
Chloride (Cl)	49.0		0.50	mg/L		25-JUL-15	R3233612
Conductivity							
Conductivity	566		1.0	umhos/cm		30-JUL-15	R3236541
Fecal Coliform							
Fecal Coliforms	2400	PEHR	3	MPN/100mL		24-JUL-15	R3235397
Hardness Calculated							
Hardness (as CaCO3)	201		0.30	mg/L		29-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	28-JUL-15	28-JUL-15	R3234932
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		25-JUL-15	R3233612
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		28-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		25-JUL-15	R3233612
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	28-JUL-15	28-JUL-15	R3234358
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L		05-AUG-15	R3239267
Phosphorus, Total							
Phosphorus (P)-Total	0.203		0.010	mg/L		29-JUL-15	R3234756
Sulfate in Water by IC							
Sulfate (SO4)	49.0		0.30	mg/L		25-JUL-15	R3233612
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	182		1.0	mg/L		30-JUL-15	R3236541

* 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
L1647683-2 COR-4							
Sampled By: CASEY P on 22-JUL-15 @ 09:30							
Matrix: WATER							
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.104		0.0050	mg/L	28-JUL-15	28-JUL-15	R3234373
Arsenic (As)-Total	0.00094		0.00020	mg/L	28-JUL-15	28-JUL-15	R3234373
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	28-JUL-15	28-JUL-15	R3234373
Calcium (Ca)-Total	62.2		0.10	mg/L	28-JUL-15	28-JUL-15	R3234373
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	28-JUL-15	28-JUL-15	R3234373
Cobalt (Co)-Total	0.00020		0.00020	mg/L	28-JUL-15	28-JUL-15	R3234373
Copper (Cu)-Total	0.00172		0.00020	mg/L	28-JUL-15	28-JUL-15	R3234373
Iron (Fe)-Total	0.46		0.10	mg/L	28-JUL-15	28-JUL-15	R3234373
Lead (Pb)-Total	0.000268		0.000090	mg/L	28-JUL-15	28-JUL-15	R3234373
Magnesium (Mg)-Total	11.2		0.010	mg/L	28-JUL-15	28-JUL-15	R3234373
Manganese (Mn)-Total	0.0675		0.00030	mg/L	28-JUL-15	28-JUL-15	R3234373
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	28-JUL-15	28-JUL-15	R3234373
Potassium (K)-Total	10.2		0.020	mg/L	28-JUL-15	28-JUL-15	R3234373
Sodium (Na)-Total	39.5		0.030	mg/L	28-JUL-15	28-JUL-15	R3234373
Zinc (Zn)-Total	0.0024		0.0020	mg/L	28-JUL-15	28-JUL-15	R3234373
Total Suspended Solids							
Total Suspended Solids	9.0		5.0	mg/L		27-JUL-15	R3234080
pH							
pH	7.84		0.10	pH units		30-JUL-15	R3236541
L1647683-3 COR-6 UPSTREAM							
Sampled By: CASEY P on 22-JUL-15 @ 10:00							
Matrix: WATER							
Miscellaneous Parameters							
Total Organic Carbon	62.5		1.0	mg/L		29-JUL-15	R3235215
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	30-JUL-15	31-JUL-15	R3237781
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	30-JUL-15	31-JUL-15	R3237781
Acenaphthene	0.000043		0.000020	mg/L	30-JUL-15	31-JUL-15	R3237781
Acenaphthylene	<0.000020		0.000020	mg/L	30-JUL-15	31-JUL-15	R3237781
Anthracene	<0.000010		0.000010	mg/L	30-JUL-15	31-JUL-15	R3237781
Acridine	0.000133	EMPC	0.000020	mg/L	30-JUL-15	31-JUL-15	R3237781
Benzo(a)anthracene	<0.000010		0.000010	mg/L	30-JUL-15	31-JUL-15	R3237781
Benzo(a)pyrene	<0.000010	DLM	0.000010	mg/L	30-JUL-15	31-JUL-15	R3237781
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	30-JUL-15	31-JUL-15	R3237781
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	30-JUL-15	31-JUL-15	R3237781
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	30-JUL-15	31-JUL-15	R3237781
Chrysene	<0.000020		0.000020	mg/L	30-JUL-15	31-JUL-15	R3237781
Dibenzo(a,h)anthracene	<0.000010	DLM	0.000010	mg/L	30-JUL-15	31-JUL-15	R3237781
Fluoranthene	<0.000020		0.000020	mg/L	30-JUL-15	31-JUL-15	R3237781
Fluorene	<0.000020		0.000020	mg/L	30-JUL-15	31-JUL-15	R3237781
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	30-JUL-15	31-JUL-15	R3237781
Naphthalene	<0.000050		0.000050	mg/L	30-JUL-15	31-JUL-15	R3237781
Phenanthrene	<0.000050		0.000050	mg/L	30-JUL-15	31-JUL-15	R3237781
Pyrene	<0.000010		0.000010	mg/L	30-JUL-15	31-JUL-15	R3237781
Quinoline	<0.00020	DLM	0.00020	mg/L	30-JUL-15	31-JUL-15	R3237781
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	30-JUL-15	31-JUL-15	R3237781
Surrogate: Acenaphthene d10	74.0		40-130	%	30-JUL-15	31-JUL-15	R3237781
Surrogate: Acridine d9	67.2		40-130	%	30-JUL-15	31-JUL-15	R3237781
Surrogate: Chrysene d12	77.1		40-130	%	30-JUL-15	31-JUL-15	R3237781
Surrogate: Naphthalene d8	77.6		40-130	%	30-JUL-15	31-JUL-15	R3237781
Surrogate: Phenanthrene d10	73.5		40-130	%	30-JUL-15	31-JUL-15	R3237781

* 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
L1647683-3 COR-6 UPSTREAM							
Sampled By: CASEY P on 22-JUL-15 @ 10:00							
Matrix: WATER							
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	397		1.2	mg/L		31-JUL-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		31-JUL-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		31-JUL-15	
Ammonia by colour							
Ammonia, Total (as N)	47.5	DLA	2.0	mg/L		29-JUL-15	R3235420
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	66	DLA	20	mg/L		25-JUL-15	R3238368
Carbonaceous BOD							
BOD Carbonaceous	58	DLA	20	mg/L		25-JUL-15	R3238368
Chloride in Water by IC							
Chloride (Cl)	58.7		0.50	mg/L		25-JUL-15	R3233612
Conductivity							
Conductivity	950		1.0	umhos/cm		30-JUL-15	R3236541
Fecal Coliform							
Fecal Coliforms	24000	PEHR	3	MPN/100mL		24-JUL-15	R3235397
Hardness Calculated							
Hardness (as CaCO3)	116		0.30	mg/L		29-JUL-15	
Mercury Total							
Mercury (Hg)-Total	<0.00040	DLM	0.00040	mg/L	28-JUL-15	28-JUL-15	R3234932
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		25-JUL-15	R3233612
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		28-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		25-JUL-15	R3233612
Oil and Grease, Total							
Oil and Grease, Total	3.8		2.0	mg/L	28-JUL-15	28-JUL-15	R3234358
Phenol (4AAP)							
Phenols (4AAP)	<0.040		0.040	mg/L		05-AUG-15	R3239267
Note: Result was checked. Data is ok. DLM (matrix interference). SD							
Phosphorus, Total							
Phosphorus (P)-Total	7.95	DLA	0.050	mg/L		29-JUL-15	R3234756
Sulfate in Water by IC							
Sulfate (SO4)	11.5		0.30	mg/L		25-JUL-15	R3233612
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	325		1.0	mg/L		30-JUL-15	R3236541
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0557		0.0050	mg/L	28-JUL-15	28-JUL-15	R3234373
Arsenic (As)-Total	0.00113		0.00020	mg/L	28-JUL-15	28-JUL-15	R3234373
Cadmium (Cd)-Total	0.000041		0.000010	mg/L	28-JUL-15	28-JUL-15	R3234373
Calcium (Ca)-Total	38.4		0.10	mg/L	28-JUL-15	28-JUL-15	R3234373
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	28-JUL-15	28-JUL-15	R3234373
Cobalt (Co)-Total	0.00063		0.00020	mg/L	28-JUL-15	28-JUL-15	R3234373
Copper (Cu)-Total	0.0184		0.00020	mg/L	28-JUL-15	28-JUL-15	R3234373
Iron (Fe)-Total	0.36		0.10	mg/L	28-JUL-15	28-JUL-15	R3234373
Lead (Pb)-Total	0.000378		0.000090	mg/L	28-JUL-15	28-JUL-15	R3234373
Magnesium (Mg)-Total	4.89		0.010	mg/L	28-JUL-15	28-JUL-15	R3234373
Manganese (Mn)-Total	0.0480		0.00030	mg/L	28-JUL-15	28-JUL-15	R3234373
Nickel (Ni)-Total	0.0031		0.0020	mg/L	28-JUL-15	28-JUL-15	R3234373

* 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
L1647683-3 COR-6 UPSTREAM							
Sampled By: CASEY P on 22-JUL-15 @ 10:00							
Matrix: WATER							
Total Metals by ICP-MS							
Potassium (K)-Total	22.7		0.020	mg/L	28-JUL-15	28-JUL-15	R3234373
Sodium (Na)-Total	50.0		0.030	mg/L	28-JUL-15	28-JUL-15	R3234373
Zinc (Zn)-Total	0.0210		0.0020	mg/L	28-JUL-15	28-JUL-15	R3234373
Total Suspended Solids							
Total Suspended Solids	57.0		5.0	mg/L		27-JUL-15	R3234080
pH							
pH	7.77		0.10	pH units		30-JUL-15	R3236541

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
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	Total Alkalinity 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.

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

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

EC-WP	Water	Conductivity	APHA 2510B

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

ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

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

HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0

Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.

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

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

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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.			
OGG-TOT-WT	Water	Oil and Grease, Total	APHA 5520 B
Sample is extracted with hexane, extract is then evaporated and the residue is weighed to determine total oil and grease.			
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)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TOC-WT	Water	Total Organic Carbon	APHA 5310B
Sample is injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic cabon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.			

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

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

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

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

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

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

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1647683-COFC

COC Number: 14 - 454488

Page ____ of ____

Report To		Report Format / Distribution	Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	HAMLET OF Coral Harbour	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Leonie Pameolik	Quality Control (QC) Report with Report ☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	PO Box 30 Coral Harbour Nu. X0C 0C0	☐ Criteria on Report - provide details below if box checked	E ☐ Emergency (1-2 business days if received by 3pm)
		Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
Phone:	(867) 925 8867 Fax 925-8233	Email 1 or Fax: Munchal@qiniq.com	Specify Date Required for E2,E or P:
		Email 2	

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☑ Yes ☐ No		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	Coral Harbour Monitoring Program	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Sharlet Sampler: Casey Pamelik

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	Metals	Nutrients	Phenols	Bacteria	Oil + Grease	PAH	BTEX	F2 - F4	Number of Containers
	Cor - 3				✓	✓	✓	✓	✓	✓	✓				8
	Cor - 4				✓	✓	✓	✓	✓	✓	✓				8
	Cor - 6 up stream				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14
	Cor - 6 down Stream														

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	15°
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

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

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Casey Pamelik	Date: July 22/15	Time: 830	Received by: EE	Date: 724-15	Time: 12:20	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0376e-V08 Front/03 October 2013

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.

Field Log

L1647683-COFC

Name of Sampler(s): George / Jimmy / Casey

Date of Sampling: July 22/15

Time of Sampling: 9:00 Am.

Monitoring Station Number: Cor-3

GPS Coordinates: N 64 ° 09 '622 " W 83 ° 11 '536"

Weather Conditions: Windy / Sunny

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres

- [ ] 1 L Amber PAH + Pres
- [ ] ~~3~~ x 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

_____

_____

_____

_____

_____

Field Log

L1647683-COFC

Name of Sampler(s): George / Jimmy / Cosey

Date of Sampling: July 22 / 15

Time of Sampling: 9:30 Am.

Monitoring Station Number: Cor - 4

GPS Coordinates: N 64 ° 09 ' 721 " W ~~68~~ ° 11 ' 621 "

Weather Conditions: Windy / Sunny

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres
- [ ] 1 L Amber PAH + Pres
- [ ] ~~3~~ **x** 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

Field Log

L1647683-COFC

Name of Sampler(s): George / Jimmy / Casey

Date of Sampling: July 22 / 15

Time of Sampling: 10:00 Am

Monitoring Station Number: Cor – 6 upstream Lagoon

GPS Coordinates: N 64 ° 09 ' 793 " W 083 ° 11 ' 501 "

Weather Conditions: Windy / Sunny.

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres
- [x] 1 L Amber PAH + Pres
- [x] ~~3 x~~ 40 mL BTEX, F1 Vials + Pres
- [x] **2** x 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

Hamlet of Coral Harbour
ATTN: LEONIE PAMEOLIK
PO Box 30
Coral Harbour MB X0C 0C0

Date Received: 21-AUG-15
Report Date: 02-SEP-15 14:57 (MT)
Version: FINAL

Client Phone: 867-925-8970

Certificate of Analysis

Lab Work Order #: L1661499

Project P.O. #: NOT SUBMITTED
Job Reference: CORAL HARBOUR MONITORING PROGRAM
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
L1661499-1 COR-3							
Sampled By: CLIENT on 19-AUG-15 @ 08:30							
Matrix: Water							
Miscellaneous Parameters							
Total Organic Carbon	59	DLA	10	mg/L		26-AUG-15	R3254351
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	438		1.2	mg/L		01-SEP-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-15	
Ammonia by colour							
Ammonia, Total (as N)	29.0		1.0	mg/L		26-AUG-15	R3254918
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	180	DLA	50	mg/L		22-AUG-15	R3255815
Carbonaceous BOD							
BOD Carbonaceous	190	DLA	50	mg/L		22-AUG-15	R3255815
Chloride in Water by IC							
Chloride (Cl)	66.0		0.50	mg/L		22-AUG-15	R3252971
Conductivity							
Conductivity	976		1.0	umhos/cm		31-AUG-15	R3257924
Fecal Coliform							
Fecal Coliforms	2400		3	MPN/100mL		21-AUG-15	R3255958
Hardness Calculated							
Hardness (as CaCO3)	151		0.30	mg/L		27-AUG-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	25-AUG-15	25-AUG-15	R3253685
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		22-AUG-15	R3252971
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		25-AUG-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-AUG-15	R3252971
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	25-AUG-15	25-AUG-15	R3253766
Phenol (4AAP)							
Phenols (4AAP)	0.0089		0.0010	mg/L		31-AUG-15	R3257596
Phosphorus, Total							
Phosphorus (P)-Total	5.85		0.050	mg/L		31-AUG-15	R3256967
Sulfate in Water by IC							
Sulfate (SO4)	28.1		0.30	mg/L		22-AUG-15	R3252971
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	359		1.0	mg/L		31-AUG-15	R3257924
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0880		0.0050	mg/L	25-AUG-15	26-AUG-15	R3254377
Arsenic (As)-Total	0.00088		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Cadmium (Cd)-Total	0.000015		0.000010	mg/L	25-AUG-15	26-AUG-15	R3254377
Calcium (Ca)-Total	50.3		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	25-AUG-15	26-AUG-15	R3254377
Cobalt (Co)-Total	0.00054		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Copper (Cu)-Total	0.00723		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Iron (Fe)-Total	0.49		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Lead (Pb)-Total	0.000261		0.000090	mg/L	25-AUG-15	26-AUG-15	R3254377
Magnesium (Mg)-Total	6.21		0.010	mg/L	25-AUG-15	26-AUG-15	R3254377
Manganese (Mn)-Total	0.0651		0.00030	mg/L	25-AUG-15	26-AUG-15	R3254377

* 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
L1661499-1 COR-3							
Sampled By: CLIENT on 19-AUG-15 @ 08:30							
Matrix: Water							
Total Metals by ICP-MS							
Nickel (Ni)-Total	0.0037		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Potassium (K)-Total	24.2		0.020	mg/L	25-AUG-15	26-AUG-15	R3254377
Sodium (Na)-Total	58.6		0.030	mg/L	25-AUG-15	26-AUG-15	R3254377
Zinc (Zn)-Total	0.0069		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Total Suspended Solids							
Total Suspended Solids	695		5.0	mg/L		25-AUG-15	R3254074
pH							
pH	7.24		0.10	pH units		31-AUG-15	R3257924
L1661499-2 COR-4							
Sampled By: CLIENT on 19-AUG-15 @ 09:30							
Matrix: Water							
Miscellaneous Parameters							
Total Organic Carbon	15.2		1.0	mg/L		26-AUG-15	R3254351
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	382		1.2	mg/L		01-SEP-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-15	
Ammonia by colour							
Ammonia, Total (as N)	0.065		0.010	mg/L		26-AUG-15	R3254918
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	3.5		2.0	mg/L		22-AUG-15	R3255815
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		22-AUG-15	R3255815
Chloride in Water by IC							
Chloride (Cl)	58.1		0.50	mg/L		22-AUG-15	R3252971
Conductivity							
Conductivity	712		1.0	umhos/cm		31-AUG-15	R3257924
Fecal Coliform							
Fecal Coliforms	4		3	MPN/100mL		21-AUG-15	R3255958
Hardness Calculated							
Hardness (as CaCO3)	277		0.30	mg/L		27-AUG-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	25-AUG-15	25-AUG-15	R3253685
Nitrate in Water by IC							
Nitrate (as N)	0.057		0.020	mg/L		22-AUG-15	R3252971
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		25-AUG-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-AUG-15	R3252971
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	25-AUG-15	25-AUG-15	R3253766
Phenol (4AAP)							
Phenols (4AAP)	0.0017		0.0010	mg/L		31-AUG-15	R3257596
Phosphorus, Total							
Phosphorus (P)-Total	0.139		0.010	mg/L		31-AUG-15	R3256967
Sulfate in Water by IC							
Sulfate (SO4)	3.14		0.30	mg/L		22-AUG-15	R3252971
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	313		1.0	mg/L		31-AUG-15	R3257924

* 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
L1661499-2 COR-4							
Sampled By: CLIENT on 19-AUG-15 @ 09:30							
Matrix: Water							
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.123		0.0050	mg/L	25-AUG-15	26-AUG-15	R3254377
Arsenic (As)-Total	0.00069		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Cadmium (Cd)-Total	0.000125		0.000010	mg/L	25-AUG-15	26-AUG-15	R3254377
Calcium (Ca)-Total	101		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	25-AUG-15	26-AUG-15	R3254377
Cobalt (Co)-Total	0.00161		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Copper (Cu)-Total	0.00523		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Iron (Fe)-Total	1.53		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Lead (Pb)-Total	0.000551		0.000090	mg/L	25-AUG-15	26-AUG-15	R3254377
Magnesium (Mg)-Total	6.20		0.010	mg/L	25-AUG-15	26-AUG-15	R3254377
Manganese (Mn)-Total	0.0512		0.00030	mg/L	25-AUG-15	26-AUG-15	R3254377
Nickel (Ni)-Total	0.0054		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Potassium (K)-Total	13.9		0.020	mg/L	25-AUG-15	26-AUG-15	R3254377
Sodium (Na)-Total	61.3		0.030	mg/L	25-AUG-15	26-AUG-15	R3254377
Zinc (Zn)-Total	0.0192		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Total Suspended Solids							
Total Suspended Solids	67.0		5.0	mg/L		25-AUG-15	R3254074
pH							
pH	7.88		0.10	pH units		31-AUG-15	R3257924
L1661499-3 COR-5							
Sampled By: CLIENT on 19-AUG-15 @ 09:45							
Matrix: Water							
Miscellaneous Parameters							
Total Organic Carbon	17.9		1.0	mg/L		26-AUG-15	R3254351
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	319		1.2	mg/L		01-SEP-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-15	
Ammonia by colour							
Ammonia, Total (as N)	0.018		0.010	mg/L		26-AUG-15	R3254918
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	107	DLA	20	mg/L		22-AUG-15	R3255815
Carbonaceous BOD							
BOD Carbonaceous	74	DLA	20	mg/L		22-AUG-15	R3255815
Chloride in Water by IC							
Chloride (Cl)	53.2		0.50	mg/L		22-AUG-15	R3252971
Conductivity							
Conductivity	673		1.0	umhos/cm		31-AUG-15	R3257924
Fecal Coliform							
Fecal Coliforms	4		3	MPN/100mL		21-AUG-15	R3255958
Hardness Calculated							
Hardness (as CaCO3)	233		0.30	mg/L		27-AUG-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	25-AUG-15	25-AUG-15	R3253685
Nitrate in Water by IC							
Nitrate (as N)	0.832		0.020	mg/L		22-AUG-15	R3252971
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.832		0.070	mg/L		25-AUG-15	
Nitrite in Water by IC							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1661499-3 COR-5							
Sampled By: CLIENT on 19-AUG-15 @ 09:45							
Matrix: Water							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-AUG-15	R3252971
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	25-AUG-15	25-AUG-15	R3253766
Phenol (4AAP)							
Phenols (4AAP)	0.0015		0.0010	mg/L		31-AUG-15	R3257596
Phosphorus, Total							
Phosphorus (P)-Total	0.350		0.010	mg/L		31-AUG-15	R3256967
Sulfate in Water by IC							
Sulfate (SO4)	12.9		0.30	mg/L		22-AUG-15	R3252971
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	262		1.0	mg/L		31-AUG-15	R3257924
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0491		0.0050	mg/L	25-AUG-15	26-AUG-15	R3254377
Arsenic (As)-Total	0.00062		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Cadmium (Cd)-Total	0.000123		0.000010	mg/L	25-AUG-15	26-AUG-15	R3254377
Calcium (Ca)-Total	82.8		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	25-AUG-15	26-AUG-15	R3254377
Cobalt (Co)-Total	0.00195		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Copper (Cu)-Total	0.0119		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Iron (Fe)-Total	<0.10		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Lead (Pb)-Total	0.000131		0.000090	mg/L	25-AUG-15	26-AUG-15	R3254377
Magnesium (Mg)-Total	6.28		0.010	mg/L	25-AUG-15	26-AUG-15	R3254377
Manganese (Mn)-Total	0.0109		0.00030	mg/L	25-AUG-15	26-AUG-15	R3254377
Nickel (Ni)-Total	0.0060		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Potassium (K)-Total	5.04		0.020	mg/L	25-AUG-15	26-AUG-15	R3254377
Sodium (Na)-Total	52.3		0.030	mg/L	25-AUG-15	26-AUG-15	R3254377
Zinc (Zn)-Total	0.0049		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Total Suspended Solids							
Total Suspended Solids	85.0		5.0	mg/L		25-AUG-15	R3254074
pH							
pH	8.07		0.10	pH units		31-AUG-15	R3257924
L1661499-4 COR-6							
Sampled By: CLIENT on 19-AUG-15 @ 08:35							
Matrix: Water							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		28-AUG-15	R3256939
Toluene	<0.0010		0.0010	mg/L		28-AUG-15	R3256939
Ethyl benzene	<0.00050		0.00050	mg/L		28-AUG-15	R3256939
o-Xylene	<0.00050		0.00050	mg/L		28-AUG-15	R3256939
m+p-Xylenes	<0.00050		0.00050	mg/L		28-AUG-15	R3256939
F1 (C6-C10)	<0.10		0.10	mg/L		28-AUG-15	R3256939
Surrogate: 4-Bromofluorobenzene (SS)	100.9		70-130	%		28-AUG-15	R3256939
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		01-SEP-15	
F2-Naphth	<0.25		0.25	mg/L		01-SEP-15	
F3-PAH	<0.25		0.25	mg/L		01-SEP-15	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		01-SEP-15	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	26-AUG-15	27-AUG-15	R3254980
F3 (C16-C34)	<0.25		0.25	mg/L	26-AUG-15	27-AUG-15	R3254980

* 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
L1661499-4 COR-6							
Sampled By: CLIENT on 19-AUG-15 @ 08:35							
Matrix: Water							
F2-F4 PHC method							
F4 (C34-C50)	<0.25		0.25	mg/L	26-AUG-15	27-AUG-15	R3254980
Surrogate: 2-Bromobenzotrifluoride	104.8		60-140	%	26-AUG-15	27-AUG-15	R3254980
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		31-AUG-15	
Miscellaneous Parameters							
Total Organic Carbon	26.4		1.0	mg/L		26-AUG-15	R3254351
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Acenaphthene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Acenaphthylene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Anthracene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Acridine	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(a)anthracene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Chrysene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	27-AUG-15	29-AUG-15	R3255859
Fluoranthene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Fluorene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Naphthalene	<0.000050		0.000050	mg/L	27-AUG-15	29-AUG-15	R3255859
Phenanthrene	<0.000050		0.000050	mg/L	27-AUG-15	29-AUG-15	R3255859
Pyrene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Quinoline	<0.00010	DLM	0.00010	mg/L	27-AUG-15	29-AUG-15	R3255859
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	27-AUG-15	29-AUG-15	R3255859
Surrogate: Acenaphthene d10	90.6		40-130	%	27-AUG-15	29-AUG-15	R3255859
Surrogate: Acridine d9	101.1		40-130	%	27-AUG-15	29-AUG-15	R3255859
Surrogate: Chrysene d12	97.1		40-130	%	27-AUG-15	29-AUG-15	R3255859
Surrogate: Naphthalene d8	78.8		40-130	%	27-AUG-15	29-AUG-15	R3255859
Surrogate: Phenanthrene d10	91.2		40-130	%	27-AUG-15	29-AUG-15	R3255859
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	280		1.2	mg/L		01-SEP-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-15	
Ammonia by colour							
Ammonia, Total (as N)	0.343		0.010	mg/L		26-AUG-15	R3254918
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	4.4		2.0	mg/L		22-AUG-15	R3255815
Carbonaceous BOD							
BOD Carbonaceous	5.5		2.0	mg/L		22-AUG-15	R3255815
Chloride in Water by IC							
Chloride (Cl)	65.4		0.50	mg/L		22-AUG-15	R3252971
Conductivity							
Conductivity	885		1.0	umhos/cm		31-AUG-15	R3257924
Fecal Coliform							
Fecal Coliforms	210		3	MPN/100mL		21-AUG-15	R3255958

* 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
L1661499-4 COR-6							
Sampled By: CLIENT on 19-AUG-15 @ 08:35							
Matrix: Water							
Hardness Calculated							
Hardness (as CaCO3)	352		0.30	mg/L		27-AUG-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	25-AUG-15	25-AUG-15	R3253685
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		22-AUG-15	R3252971
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		25-AUG-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-AUG-15	R3252971
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	25-AUG-15	25-AUG-15	R3253766
Phenol (4AAP)							
Phenols (4AAP)	0.0017		0.0010	mg/L		31-AUG-15	R3257596
Phosphorus, Total							
Phosphorus (P)-Total	0.125		0.010	mg/L		31-AUG-15	R3256967
Sulfate in Water by IC							
Sulfate (SO4)	140		0.30	mg/L		22-AUG-15	R3252971
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	230		1.0	mg/L		31-AUG-15	R3257924
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0720		0.0050	mg/L	25-AUG-15	26-AUG-15	R3254377
Arsenic (As)-Total	0.00097		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	25-AUG-15	26-AUG-15	R3254377
Calcium (Ca)-Total	111		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	25-AUG-15	26-AUG-15	R3254377
Cobalt (Co)-Total	0.00023		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Copper (Cu)-Total	0.00136		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Iron (Fe)-Total	0.46		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Lead (Pb)-Total	0.000252		0.000090	mg/L	25-AUG-15	26-AUG-15	R3254377
Magnesium (Mg)-Total	18.0		0.010	mg/L	25-AUG-15	26-AUG-15	R3254377
Manganese (Mn)-Total	0.0635		0.00030	mg/L	25-AUG-15	26-AUG-15	R3254377
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Potassium (K)-Total	15.9		0.020	mg/L	25-AUG-15	26-AUG-15	R3254377
Sodium (Na)-Total	55.3		0.030	mg/L	25-AUG-15	26-AUG-15	R3254377
Zinc (Zn)-Total	0.0034		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Total Suspended Solids							
Total Suspended Solids	8.0		5.0	mg/L		25-AUG-15	R3254074
pH							
pH	8.21		0.10	pH units		31-AUG-15	R3257924
L1661499-5 COR-7							
Sampled By: CLIENT on 19-AUG-15 @ 08:45							
Matrix: Water							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		29-AUG-15	R3256939
Toluene	<0.0010		0.0010	mg/L		29-AUG-15	R3256939
Ethyl benzene	<0.00050		0.00050	mg/L		29-AUG-15	R3256939
o-Xylene	<0.00050		0.00050	mg/L		29-AUG-15	R3256939
m+p-Xylenes	<0.00050		0.00050	mg/L		29-AUG-15	R3256939
F1 (C6-C10)	<0.10		0.10	mg/L		29-AUG-15	R3256939
Surrogate: 4-Bromofluorobenzene (SS)	97.9		70-130	%		29-AUG-15	R3256939
CCME Total Hydrocarbons							

* 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
L1661499-5 COR-7							
Sampled By: CLIENT on 19-AUG-15 @ 08:45							
Matrix: Water							
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		01-SEP-15	
F2-Naphth	<0.25		0.25	mg/L		01-SEP-15	
F3-PAH	<0.25		0.25	mg/L		01-SEP-15	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		01-SEP-15	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	26-AUG-15	27-AUG-15	R3254980
F3 (C16-C34)	<0.25		0.25	mg/L	26-AUG-15	27-AUG-15	R3254980
F4 (C34-C50)	<0.25		0.25	mg/L	26-AUG-15	27-AUG-15	R3254980
Surrogate: 2-Bromobenzotrifluoride	106.0		60-140	%	26-AUG-15	27-AUG-15	R3254980
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		31-AUG-15	
Miscellaneous Parameters							
Total Organic Carbon	18.0		1.0	mg/L		26-AUG-15	R3254351
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Acenaphthene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Acenaphthylene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Anthracene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Acridine	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(a)anthracene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Chrysene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	27-AUG-15	29-AUG-15	R3255859
Fluoranthene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Fluorene	<0.000020		0.000020	mg/L	27-AUG-15	29-AUG-15	R3255859
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Naphthalene	<0.000050		0.000050	mg/L	27-AUG-15	29-AUG-15	R3255859
Phenanthrene	<0.000050		0.000050	mg/L	27-AUG-15	29-AUG-15	R3255859
Pyrene	<0.000010		0.000010	mg/L	27-AUG-15	29-AUG-15	R3255859
Quinoline	<0.00015	DLM	0.00015	mg/L	27-AUG-15	29-AUG-15	R3255859
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	27-AUG-15	29-AUG-15	R3255859
Surrogate: Acenaphthene d10	89.9		40-130	%	27-AUG-15	29-AUG-15	R3255859
Surrogate: Acridine d9	100.7		40-130	%	27-AUG-15	29-AUG-15	R3255859
Surrogate: Chrysene d12	94.4		40-130	%	27-AUG-15	29-AUG-15	R3255859
Surrogate: Naphthalene d8	82.2		40-130	%	27-AUG-15	29-AUG-15	R3255859
Surrogate: Phenanthrene d10	90.3		40-130	%	27-AUG-15	29-AUG-15	R3255859
Nunavut WW Group 1							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	189		1.2	mg/L		01-SEP-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		01-SEP-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		01-SEP-15	
Ammonia by colour							
Ammonia, Total (as N)	0.205		0.010	mg/L		26-AUG-15	R3254918
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		22-AUG-15	R3255815
Carbonaceous BOD							

* 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
L1661499-5 COR-7							
Sampled By: CLIENT on 19-AUG-15 @ 08:45							
Matrix: Water							
Carbonaceous BOD							
BOD Carbonaceous	<2.0		2.0	mg/L		22-AUG-15	R3255815
Chloride in Water by IC							
Chloride (Cl)	10.3		0.50	mg/L		22-AUG-15	R3252971
Conductivity							
Conductivity	1030		1.0	umhos/cm		31-AUG-15	R3257924
Fecal Coliform							
Fecal Coliforms	<3		3	MPN/100mL		21-AUG-15	R3255958
Hardness Calculated							
Hardness (as CaCO3)	494		0.30	mg/L		27-AUG-15	
Mercury Total							
Mercury (Hg)-Total	<0.00020	DLM	0.00020	mg/L	25-AUG-15	25-AUG-15	R3253685
Nitrate in Water by IC							
Nitrate (as N)	0.049		0.020	mg/L		22-AUG-15	R3252971
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.070		0.070	mg/L		25-AUG-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-AUG-15	R3252971
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	25-AUG-15	25-AUG-15	R3253766
Phenol (4AAP)							
Phenols (4AAP)	0.0025		0.0010	mg/L		31-AUG-15	R3257596
Phosphorus, Total							
Phosphorus (P)-Total	0.129		0.010	mg/L		31-AUG-15	R3256967
Sulfate in Water by IC							
Sulfate (SO4)	401		0.30	mg/L		22-AUG-15	R3252971
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	155		1.0	mg/L		31-AUG-15	R3257924
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0165		0.0050	mg/L	25-AUG-15	26-AUG-15	R3254377
Arsenic (As)-Total	0.00050		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Cadmium (Cd)-Total	0.000021		0.000010	mg/L	25-AUG-15	26-AUG-15	R3254377
Calcium (Ca)-Total	178		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	25-AUG-15	26-AUG-15	R3254377
Cobalt (Co)-Total	0.00026		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Copper (Cu)-Total	0.00428		0.00020	mg/L	25-AUG-15	26-AUG-15	R3254377
Iron (Fe)-Total	0.89		0.10	mg/L	25-AUG-15	26-AUG-15	R3254377
Lead (Pb)-Total	0.000159		0.000090	mg/L	25-AUG-15	26-AUG-15	R3254377
Magnesium (Mg)-Total	12.0		0.010	mg/L	25-AUG-15	26-AUG-15	R3254377
Manganese (Mn)-Total	0.0742		0.00030	mg/L	25-AUG-15	26-AUG-15	R3254377
Nickel (Ni)-Total	0.0024		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Potassium (K)-Total	7.42		0.020	mg/L	25-AUG-15	26-AUG-15	R3254377
Sodium (Na)-Total	14.2		0.030	mg/L	25-AUG-15	26-AUG-15	R3254377
Zinc (Zn)-Total	0.0612		0.0020	mg/L	25-AUG-15	26-AUG-15	R3254377
Total Suspended Solids							
Total Suspended Solids	<5.0		5.0	mg/L		25-AUG-15	R3254074
pH							
pH	7.81		0.10	pH units		31-AUG-15	R3257924

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
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	Total Alkalinity 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.

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

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

EC-WP	Water	Conductivity	APHA 2510B

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

ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

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

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

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

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
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.

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 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	F2-F4 PHC method	CWS (CCME)

Petroleum Hydrocarbons (F2-F4) in Water Method is adapted from US EPA Method 3511: Organic Compounds in Water by Micro-extraction" (Nov 2002) with instrumental analysis as per the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method" (CCMS, Dec 2000) Water samples (in their entirety) are extracted using hexane prior to capillary column gas chromatography with flame ionization detection (GC/FID).

FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

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

HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0

Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.

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

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

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

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

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

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

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

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

OGG-TOT-WT	Water	Oil and Grease, Total	APHA 5520 B

Sample is extracted with hexane, extract is then evaporated and the residue is weighed to determine total oil and grease.

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)

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

TOC-WT	Water	Total Organic Carbon	APHA 5310B

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
Sample is injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic cabon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

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

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

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

Chain of Custody Numbers:

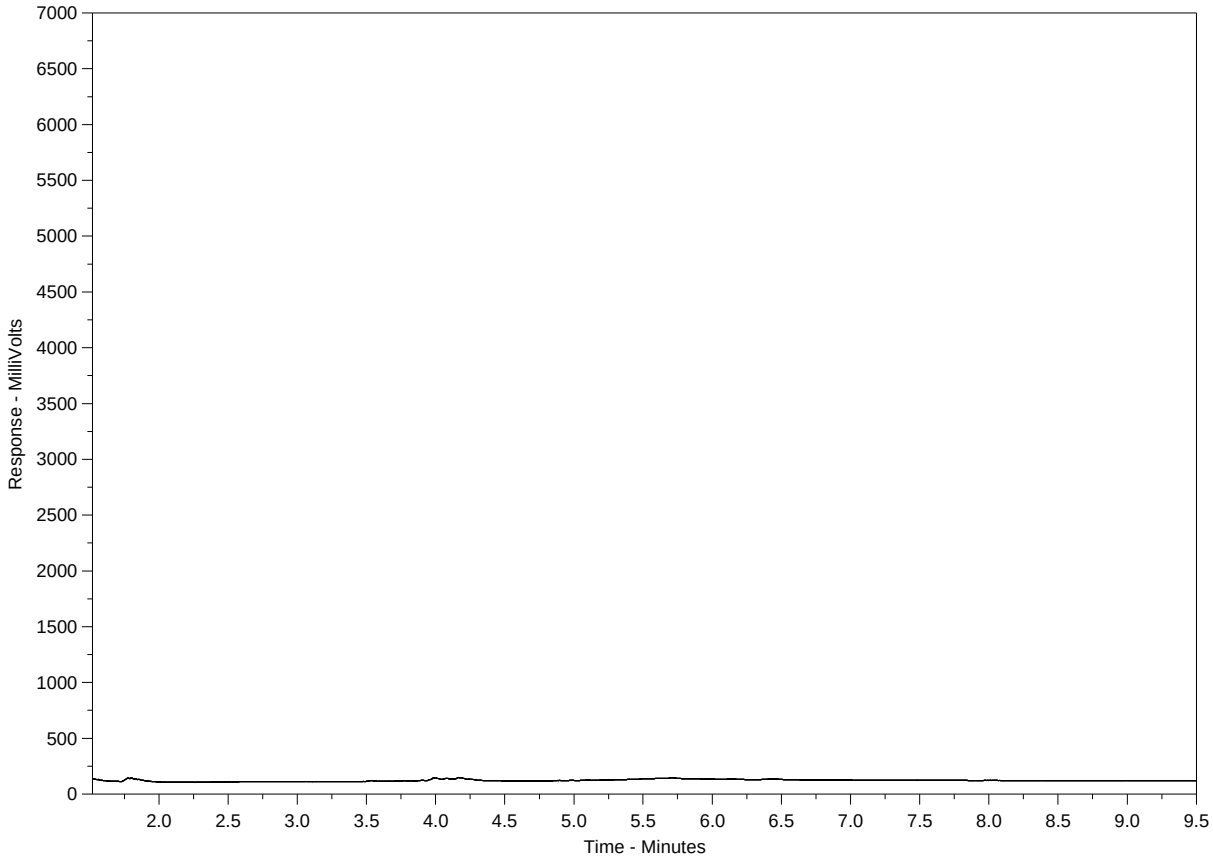
GLOSSARY OF REPORT TERMS

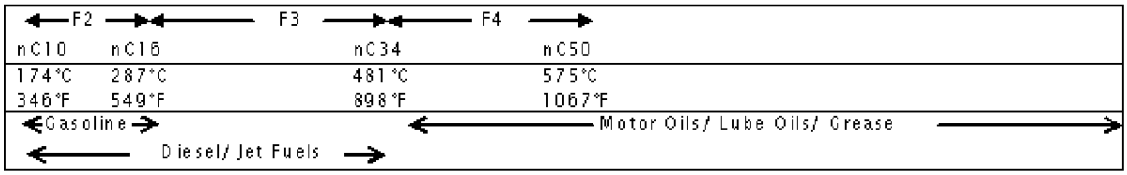
Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1661499-4
Client Sample ID: COR-6





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

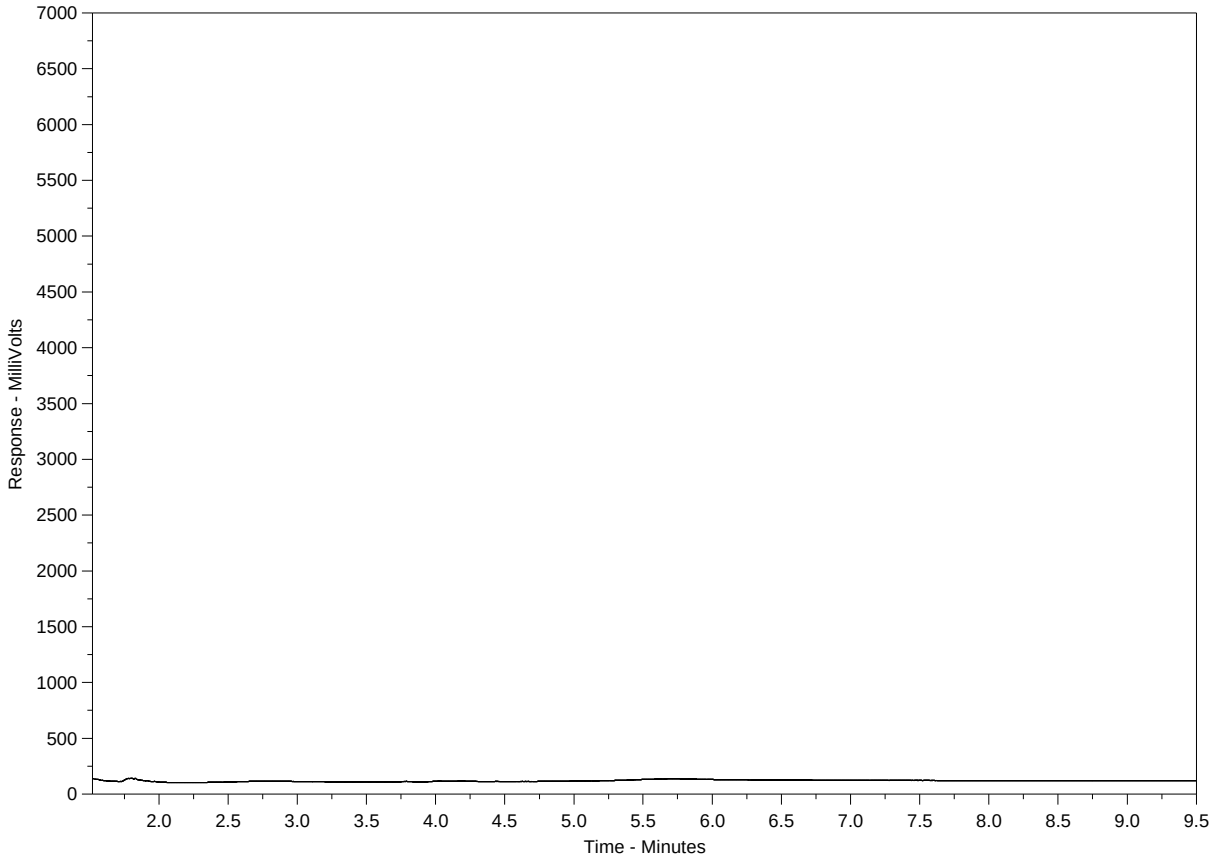
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

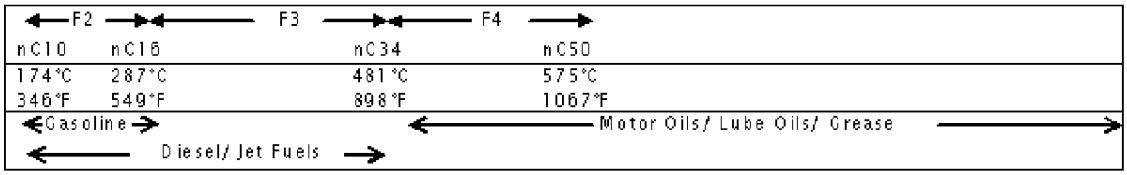
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1661499-5
Client Sample ID: COR-7





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

L1661499-COFC

COC Number: 14 - 454515

Page 1 of 1

Report To		Report Format / Distribution	Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	Hamlet of Coral Harbour	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Leonie Panneelik	Quality Control (QC) Report with Report ☐ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	P.O. Box 3 Coral Harbour NU X0C 0C0	☐ Criteria on Report - provide details below if box checked	E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	(867) 925 8867 Fax (867) 925 8233	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax: Munch@qiniq.com	Specify Date Required for E2,E or P:
		Email 2:	

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☑ Yes ☐ No	Email 1 or Fax: Munch@qiniq.com	
Company:		Email 2:	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	Coral Harbour Monitoring Program	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
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	Metals	Nutrients	Phenols	Bacteria	Oil/Grease	PAH	BTex Fi	F2 F4	Number of Containers
	Cor-3	Aug 19/15	8:30am		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Cor-4	Aug 19/15	9:30am		✓	✓	✓	✓	✓	✓	✓	✓			
	Cor-5	Aug 19/15	9:45am		✓	✓	✓	✓	✓	✓	✓	✓			
	Cor-6	Aug 19/15	8:35am		✓	✓	✓	✓	✓	✓	✓	✓			
	Cor-7	Aug 19/15	8:46am		✓	✓	✓	✓	✓	✓	✓	✓			
			CB	CB											

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☑ No	

SAMPLE CONDITION AS RECEIVED (lab use only)			
Frozen ☐	SIF Observations	Yes ☐	No ☐
Ice packs ☐ Yes	☐ No	Custody seal intact	Yes ☑ No ☐
Cooling Initiated ☐			

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Casey Tomlyn	Aug 19/15	8:30AM	CB	08/21/15	12:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS Fm 0327fw v08 Front/05 October 2013

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.

18

Field Log

L1661499-COFC

Name of Sampler(s): George / Jimmy / Cathy

Date of Sampling: Aug 19/15

Time of Sampling: 945

Monitoring Station Number: Cor-5

GPS Coordinates: N 64 ° 09 ' 48.0" W 93 ° 11 ' 16.2"

Weather Conditions: Sunny

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [ ] 125 mL Sterile Bacteria Bottle
- [x] ~~2~~ 500 mL Glass Oil & Grease + Pres

- [ ] 1 L Amber PAH + Pres
- [ ] ~~3~~ x 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

Lake at South of Lagoon to Dump.

L1661499-COFC

Field Log

Name of Sampler(s): George / Jimmy / Casey

Date of Sampling: Aug 19/15

Time of Sampling: _____

Monitoring Station Number: Cor-4

GPS Coordinates: N 64 ° 09 ' 47.1 " W 93 ° 11 ' 20.1 "

Weather Conditions: Sunny !

Samples:

- [x] 500 mL BOD
- [x] 1L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres
- [ ] 1 L Amber PAH + Pres
- [ ] **3 x** 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

Stream from the lagoon

L1661499-COFC

Field Log

Name of Sampler(s): George / Jimmy / Casey

Date of Sampling: Aug 19/15

Time of Sampling: _____

Monitoring Station Number: Cor – 7

GPS Coordinates: N 64 ° 09 ' 62.5 " W 083 ° 11 ' 538 "

Weather Conditions: Sunny

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres

- [ ] 1 L Amber PAH + Pres
- [ ] ~~3~~ x 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

Dump Stream where Utilities are

L1661499-COFC

Field Log

Name of Sampler(s): George / Jimmy / Cassy

Date of Sampling: Aug 19/15

Time of Sampling: _____

Monitoring Station Number: Cor – 3

GPS Coordinates: N 60 ° 09 ~~996~~ " W 083 ° 11 ~~487~~ "

Weather Conditions: Sunny

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [x] **2 x** 500 mL Glass Oil & Grease + Pres

- [x] 1 L Amber PAH + Pres
- [x] ~~3~~ x 40 mL BTEX, F1 Vials + Pres
- [x] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

lagoon

Field Log

L1661499-COFC

Name of Sampler(s): George / Stacy / Casey

Date of Sampling: Aug 19/15

Time of Sampling: _____

Monitoring Station Number: Cer - 6

GPS Coordinates: N 64 ° 09 ' 41.9 " W 083 ° 11 ' 36.5 "

Weather Conditions: Sunny

Samples:

- [x] 500 mL BOD
- [x] 1 L Routine
- [x] 250 mL Metals + Pres
- [x] 40 mL Glass Mercury Vial + Pres
- [x] 250 mL Amber Nutrients + Pres
- [x] 250 mL Amber Phenols + Pres
- [x] 125 mL Sterile Bacteria Bottle
- [ ] **2 x** 500 mL Glass Oil & Grease + Pres
- [ ] 1 L Amber PAH + Pres
- [ ] ~~3 x~~ 40 mL BTEX, F1 Vials + Pres
- [ ] **2 x** 60 mL Amber F2-F4 Vials + Pres

Other:

- [ ] _____
- [ ] _____
- [ ] _____

Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)

Fa between lagoon and Dump Lake

Hazardous Materials Spill Database

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

Sorted By: SpillNo for the year(s): 2015

Spill No.	Date	Ter	Region	Location	Site Description	Commodity	Quantity	Source	Agency
2015007	2015-01-09	NU	KEE	Coral Harbour	Sakku School	Diesel	170 L	ST<	GN
2015228	2015-05-29	NU	KEE	Coral Harbour	Public Housing Unit 174-M	Heat fuel	30 L	ST<	GN

Total Spills on this Report: 2

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

LEGEND

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

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

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