Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O Box 119, Gjoa Haven, Nunavut
X0B 1J0
Phone (867) 360-6338 ext. 27 Fax (867) 360-6369
Email licensing@nunavutwaterboard.org

Date: March 28th 2013

RE: Water License 3BM-WHA 0914 Hamlet of Whale Cove Annual Report 2013

Good afternoon Phyllis,

Please find attached the annual report for the above mentioned license, you will also find attachments with respect to the sample results as well as any other related information pertaining to the license requirements.

Please contact me should you have any questions, comments, or concerns.

Thanks

Jason Tologanak
Regional Director, Kivalliq Region
Community & Government Services
Rankin Inlet, Nunavut
X0C 0G0
Phone (867) 645-8101
Fax (867) 645- 8197
Cell (867) 645-7255

ANNUAL REPORT
FOR THE HAMLET OF WHALE COVE, 2012

YEAR BEING REPORTED: 2012

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License # 3BM-WHA 0914 issued to the Hamlet of Whale Cove.

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

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

Month Reported	Quantity of Water Obtained from all sources (litres)	Quantity of Sewage Waste Discharged (Estimated)
January 2012	1,213,181	Same
February 2012	747,043	Same
March 2012	1,246,356	Same
April 2012	1,216,784	Same
May 2012	1,220,910	Same
June 2012	1,312,802	Same
July 2012	1,440,671	Same
August 2012	1,331,664	Same
September 2012	1,280,875	Same
October 2012	1,399,998	Same
November 2012	1,205,804	Same
December 2012	1,151,165	Same
ANNUAL TOTAL	14,787,253	14,787,253

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

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;

The Landfarm is 75% full and the portion with soil was up to the height of berms and required remediation. In summer of 2012, consultant was hired to access the hydrocarbons impacts in the soil, environmental report of site, take samples, study, detailed report and complete remediation plan to reclaim soil.

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

Not happened.

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 took place in 2012 and no plan in 2013

vii. a summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;

- An engineering consulting firm Arktis solutions Inc. completed a feasibility Study on waste management facilities across Nunavut and recommended new guidelines. CGS is planning to use the new standard and criteria in the design for the future waste management facilities as GN guidelines.
- The Consultant took soil samples from the landfarms in the fall of 2012, analyzed and submitted the lab results with remedial plan to CGS.
- The consultant also prepared specifications of process management for remediation of soil in 2013.
- William Engineering Ltd is conducting a Bathymetric Surveys on the existing water source and the proposed secondary water source. This study will be completed in 2014.

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

- Measure raw water intake
- Maintain wastewater effluent quality
- Monitor ground water quality in the solid waste site

Follow Part H: Monitoring program of the Water License.

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

The O&M plans will be updated once the optimization of the existing facilities or construction of the new facilities takes place under water license.

- No specific instruction was recently received to follow up.

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

The Licensee will be conducting extended sampling and testing program from 2013.

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

The Licensee will be working with CGS to satisfy the requirements of the Water License and the demand of the AANDC inspector.

- The Lab Test Results for 2012


L1170026_COA.PDF


L1222380_COA.PDF


L1216427_COA.PDF


L1192241_COA.PDF

Hamlet of Whale Cove
ATTN: BROCK JUNKIN
PO Box 120
Whale Cove MB X0C 0J0

Date Received: 28-JUN-12
Report Date: 11-JUL-12 21:33 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: **L1170026**
Project P.O. #: NOT SUBMITTED
Job Reference: WHALE COVER MONITORING PROGRAM
C of C Numbers:
Legal Site Desc:

Gail Hill
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1170026-1 WHA-2							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 09:30							
Matrix: WASTE WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-JUL-12	R2392044
Toluene	<0.0010		0.0010	mg/L		06-JUL-12	R2392044
Ethyl benzene	<0.00050		0.00050	mg/L		06-JUL-12	R2392044
o-Xylene	<0.00050		0.00050	mg/L		06-JUL-12	R2392044
m+p-Xylenes	<0.00050		0.00050	mg/L		06-JUL-12	R2392044
Xylenes	<0.0015		0.0015	mg/L		06-JUL-12	R2392044
F1 (C6-C10)	<0.10		0.10	mg/L		06-JUL-12	R2392044
Surrogate: 4-Bromofluorobenzene (SS)	105.5		70-130	%		06-JUL-12	R2392044
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		09-JUL-12	
F2-Naphth	<0.25		0.25	mg/L		09-JUL-12	
F3-PAH	<0.25		0.25	mg/L		09-JUL-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		09-JUL-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	29-JUN-12	30-JUN-12	R2392185
F3 (C16-C34)	<0.25		0.25	mg/L	29-JUN-12	30-JUN-12	R2392185
F4 (C34-C50)	<0.25		0.25	mg/L	29-JUN-12	30-JUN-12	R2392185
Surrogate: 2-Bromobenzotrifluoride	85.6		65-135	%	29-JUN-12	30-JUN-12	R2392185
Miscellaneous Parameters							
Ammonia, Total (as N)	0.201		0.010	mg/L		10-JUL-12	R2396000
Biochemical Oxygen Demand	9.0		6.0	mg/L	29-JUN-12	04-JUL-12	R2392125
BOD Carbonaceous	7.8		6.0	mg/L	29-JUN-12	04-JUL-12	R2392124
Fecal Coliforms	93		3	MPN/100mL		02-JUL-12	R2391621
Oil and Grease, Total	<2.0		2.0	mg/L	03-JUL-12	03-JUL-12	R2391401
Phenols (4AAP)	0.0060		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393500
Phosphorus (P)-Total	0.207		0.010	mg/L		02-JUL-12	R2391239
Total Organic Carbon	24.5		1.0	mg/L	07-JUL-12	07-JUL-12	R2394539
Total Suspended Solids	18.0		5.0	mg/L		09-JUL-12	R2394635
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
Acenaphthene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
Acenaphthylene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
Anthracene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R2393064
Acridine	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
Benzo(a)anthracene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R2393064
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	29-JUN-12	04-JUL-12	R2393064
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R2393064
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R2393064
Chrysene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	29-JUN-12	04-JUL-12	R2393064
Fluoranthene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
Fluorene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R2393064
Naphthalene	0.000055		0.000050	mg/L	29-JUN-12	04-JUL-12	R2393064
Phenanthrene	<0.000050		0.000050	mg/L	29-JUN-12	04-JUL-12	R2393064
Pyrene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R2393064
Quinoline	0.000083		0.000020	mg/L	29-JUN-12	04-JUL-12	R2393064
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	29-JUN-12	04-JUL-12	R2393064

* 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
L1170026-1 WHA-2							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 09:30							
Matrix: WASTE WATER							
Polyaromatic Hydrocarbons (PAHs)							
Surrogate: Acenaphthene d10	85.5		50-150	%	29-JUN-12	04-JUL-12	R2393064
Surrogate: Acridine d9	94.4		50-150	%	29-JUN-12	04-JUL-12	R2393064
Surrogate: Chrysene d12	84.9		50-150	%	29-JUN-12	04-JUL-12	R2393064
Surrogate: Naphthalene d8	80.6		50-150	%	29-JUN-12	04-JUL-12	R2393064
Surrogate: Phenanthrene d10	88.8		50-150	%	29-JUN-12	04-JUL-12	R2393064
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	134		20	mg/L		29-JUN-12	R2390568
Bicarbonate (HCO3)	163		24	mg/L		29-JUN-12	R2390568
Carbonate (CO3)	<12		12	mg/L		29-JUN-12	R2390568
Hydroxide (OH)	<6.8		6.8	mg/L		29-JUN-12	R2390568
Chloride by Ion Chromatography							
Chloride	72.9		0.50	mg/L		30-JUN-12	R2392864
Conductivity							
Conductivity	653		20	umhos/cm		29-JUN-12	R2390568
Hardness Calculated							
Hardness (as CaCO3)	217		0.30	mg/L		04-JUL-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		30-JUN-12	R2392864
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		28-JUN-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		30-JUN-12	R2392864
Sulfate by Ion Chromatography							
Sulfate	87.0		0.50	mg/L		30-JUN-12	R2392864
TDS calculated							
TDS (Calculated)	379		5.0	mg/L		04-JUL-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.095		0.020	mg/L	03-JUL-12	03-JUL-12	R2392203
Antimony (Sb)-Total	0.0029		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Arsenic (As)-Total	0.0025		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Barium (Ba)-Total	0.0305		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Boron (B)-Total	0.255		0.030	mg/L	03-JUL-12	03-JUL-12	R2392203
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	03-JUL-12	03-JUL-12	R2392203
Calcium (Ca)-Total	69.8		0.20	mg/L	03-JUL-12	03-JUL-12	R2392203
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Chromium (Cr)-Total	0.0033		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Cobalt (Co)-Total	0.00094		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Copper (Cu)-Total	0.0119		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Iron (Fe)-Total	1.74		0.10	mg/L	03-JUL-12	03-JUL-12	R2392203
Lead (Pb)-Total	0.0020		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Lithium (Li)-Total	0.0067		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Magnesium (Mg)-Total	10.4		0.050	mg/L	03-JUL-12	03-JUL-12	R2392203
Manganese (Mn)-Total	0.183		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Molybdenum (Mo)-Total	0.0360		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Nickel (Ni)-Total	0.0069		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Phosphorus (P)-Total	<0.50		0.50	mg/L	03-JUL-12	03-JUL-12	R2392203
Potassium (K)-Total	8.01		0.10	mg/L	03-JUL-12	03-JUL-12	R2392203
Rubidium (Rb)-Total	0.00693		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Selenium (Se)-Total	0.0051		0.0050	mg/L	03-JUL-12	03-JUL-12	R2392203

* 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
L1170026-1 WHA-2							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 09:30							
Matrix: WASTE WATER							
Total Metals by ICP-MS							
Silicon (Si)-Total	1.26		0.30	mg/L	03-JUL-12	03-JUL-12	R2392203
Silver (Ag)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Sodium (Na)-Total	50.6		0.050	mg/L	03-JUL-12	03-JUL-12	R2392203
Strontium (Sr)-Total	0.490		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	03-JUL-12	03-JUL-12	R2392203
Thorium (Th)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Tin (Sn)-Total	<0.00060		0.00060	mg/L	03-JUL-12	03-JUL-12	R2392203
Titanium (Ti)-Total	0.0043		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Tungsten (W)-Total	<0.0020		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Uranium (U)-Total	0.00070		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Vanadium (V)-Total	<0.0020		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Zinc (Zn)-Total	0.051		0.020	mg/L	03-JUL-12	03-JUL-12	R2392203
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
pH							
pH	7.94		0.10	pH units		29-JUN-12	R2390568
L1170026-2 WHA-3							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 10:20							
Matrix: WASTE WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	27.2	DLA	1.0	mg/L		11-JUL-12	R2396506
Biochemical Oxygen Demand	21.0		6.0	mg/L	29-JUN-12	04-JUL-12	R2392125
BOD Carbonaceous	19.8		6.0	mg/L	29-JUN-12	04-JUL-12	R2392124
Fecal Coliforms	7500		3	MPN/100mL		02-JUL-12	R2391621
Oil and Grease, Total	<2.0		2.0	mg/L	03-JUL-12	03-JUL-12	R2391401
Phenols (4AAP)	0.0020		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393500
Phosphorus (P)-Total	4.79		0.010	mg/L		02-JUL-12	R2391239
Total Organic Carbon	35.0		1.0	mg/L	07-JUL-12	07-JUL-12	R2394539
Total Suspended Solids	40.0		5.0	mg/L		09-JUL-12	R2394635
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	193		20	mg/L		29-JUN-12	R2390568
Bicarbonate (HCO3)	204		24	mg/L		29-JUN-12	R2390568
Carbonate (CO3)	15		12	mg/L		29-JUN-12	R2390568
Hydroxide (OH)	<6.8		6.8	mg/L		29-JUN-12	R2390568
Chloride by Ion Chromatography							
Chloride	79.8		0.50	mg/L		30-JUN-12	R2392864
Conductivity							
Conductivity	678		20	umhos/cm		29-JUN-12	R2390568
Hardness Calculated							
Hardness (as CaCO3)	82.5		0.30	mg/L		04-JUL-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	0.202		0.050	mg/L		30-JUN-12	R2392864
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.296		0.071	mg/L		28-JUN-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	0.095		0.050	mg/L		30-JUN-12	R2392864
Sulfate by Ion Chromatography							
Sulfate	21.2		0.50	mg/L		30-JUN-12	R2392864
TDS calculated							
TDS (Calculated)	331		5.0	mg/L		04-JUL-12	

* 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
L1170026-2 WHA-3							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 10:20							
Matrix: WASTE WATER							
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.075		0.020	mg/L	03-JUL-12	03-JUL-12	R2392203
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Arsenic (As)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Barium (Ba)-Total	0.00186		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Boron (B)-Total	0.127		0.030	mg/L	03-JUL-12	03-JUL-12	R2392203
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	03-JUL-12	03-JUL-12	R2392203
Calcium (Ca)-Total	23.0		0.20	mg/L	03-JUL-12	03-JUL-12	R2392203
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Chromium (Cr)-Total	0.0021		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Copper (Cu)-Total	0.0196		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Iron (Fe)-Total	<0.10		0.10	mg/L	03-JUL-12	03-JUL-12	R2392203
Lead (Pb)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Lithium (Li)-Total	<0.0020		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Magnesium (Mg)-Total	6.10		0.050	mg/L	03-JUL-12	03-JUL-12	R2392203
Manganese (Mn)-Total	0.0592		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Molybdenum (Mo)-Total	0.00087		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Nickel (Ni)-Total	0.0021		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Phosphorus (P)-Total	4.92		0.50	mg/L	03-JUL-12	03-JUL-12	R2392203
Potassium (K)-Total	15.7		0.10	mg/L	03-JUL-12	03-JUL-12	R2392203
Rubidium (Rb)-Total	0.0169		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Selenium (Se)-Total	<0.0050		0.0050	mg/L	03-JUL-12	03-JUL-12	R2392203
Silicon (Si)-Total	2.13		0.30	mg/L	03-JUL-12	03-JUL-12	R2392203
Silver (Ag)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Sodium (Na)-Total	70.0		0.050	mg/L	03-JUL-12	03-JUL-12	R2392203
Strontium (Sr)-Total	0.102		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	03-JUL-12	03-JUL-12	R2392203
Thorium (Th)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Tin (Sn)-Total	<0.00060		0.00060	mg/L	03-JUL-12	03-JUL-12	R2392203
Titanium (Ti)-Total	0.0011		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Tungsten (W)-Total	<0.0020		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Uranium (U)-Total	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Vanadium (V)-Total	<0.0020		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Zinc (Zn)-Total	<0.020		0.020	mg/L	03-JUL-12	03-JUL-12	R2392203
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
pH							
pH	8.63		0.10	pH units		29-JUN-12	R2390568
L1170026-3 WHA-4							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 10:00							
Matrix: WASTE WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.055		0.010	mg/L		10-JUL-12	R2396000
Biochemical Oxygen Demand	<6.0		6.0	mg/L	29-JUN-12	04-JUL-12	R2392125
BOD Carbonaceous	<6.0		6.0	mg/L	29-JUN-12	04-JUL-12	R2392124
Fecal Coliforms	<3		3	MPN/100mL		02-JUL-12	R2391621
Oil and Grease, Total	<2.0		2.0	mg/L	03-JUL-12	03-JUL-12	R2391401
Phenols (4AAP)	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393500

* 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
L1170026-3 WHA-4							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 10:00							
Matrix: WASTE WATER							
Phosphorus (P)-Total	1.31		0.010	mg/L		02-JUL-12	R2391239
Total Organic Carbon	33.5		1.0	mg/L	07-JUL-12	07-JUL-12	R2394539
Total Suspended Solids	47.0		5.0	mg/L		09-JUL-12	R2394635
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	220		20	mg/L		29-JUN-12	R2390568
Bicarbonate (HCO3)	254		24	mg/L		29-JUN-12	R2390568
Carbonate (CO3)	<12		12	mg/L		29-JUN-12	R2390568
Hydroxide (OH)	<6.8		6.8	mg/L		29-JUN-12	R2390568
Chloride by Ion Chromatography							
Chloride	137		0.50	mg/L		30-JUN-12	R2392864
Conductivity							
Conductivity	908		20	umhos/cm		29-JUN-12	R2390568
Hardness Calculated							
Hardness (as CaCO3)	196		0.30	mg/L		04-JUL-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		30-JUN-12	R2392864
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		28-JUN-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		30-JUN-12	R2392864
Sulfate by Ion Chromatography							
Sulfate	41.9		0.50	mg/L		30-JUN-12	R2392864
TDS calculated							
TDS (Calculated)	521		5.0	mg/L		04-JUL-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.233		0.020	mg/L	03-JUL-12	03-JUL-12	R2392203
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Arsenic (As)-Total	0.0107		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Barium (Ba)-Total	0.0287		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Boron (B)-Total	0.197		0.030	mg/L	03-JUL-12	03-JUL-12	R2392203
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	03-JUL-12	03-JUL-12	R2392203
Calcium (Ca)-Total	56.7		0.20	mg/L	03-JUL-12	03-JUL-12	R2392203
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Chromium (Cr)-Total	0.0028		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Cobalt (Co)-Total	0.00122		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Copper (Cu)-Total	0.0029		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Iron (Fe)-Total	0.73		0.10	mg/L	03-JUL-12	03-JUL-12	R2392203
Lead (Pb)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Lithium (Li)-Total	0.0066		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Magnesium (Mg)-Total	13.2		0.050	mg/L	03-JUL-12	03-JUL-12	R2392203
Manganese (Mn)-Total	0.329		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Molybdenum (Mo)-Total	0.00458		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Nickel (Ni)-Total	0.0060		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Phosphorus (P)-Total	1.22		0.50	mg/L	03-JUL-12	03-JUL-12	R2392203
Potassium (K)-Total	22.4		0.10	mg/L	03-JUL-12	03-JUL-12	R2392203
Rubidium (Rb)-Total	0.00932		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Selenium (Se)-Total	0.0072		0.0050	mg/L	03-JUL-12	03-JUL-12	R2392203
Silicon (Si)-Total	2.01		0.30	mg/L	03-JUL-12	03-JUL-12	R2392203
Silver (Ag)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Sodium (Na)-Total	118		0.050	mg/L	03-JUL-12	03-JUL-12	R2392203

* 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
L1170026-3 WHA-4							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 10:00							
Matrix: WASTE WATER							
Total Metals by ICP-MS							
Strontium (Sr)-Total	0.373		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	03-JUL-12	03-JUL-12	R2392203
Thorium (Th)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Tin (Sn)-Total	<0.00060		0.00060	mg/L	03-JUL-12	03-JUL-12	R2392203
Titanium (Ti)-Total	0.0102		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Tungsten (W)-Total	<0.0020		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Uranium (U)-Total	0.00347		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Vanadium (V)-Total	0.0023		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Zinc (Zn)-Total	<0.020		0.020	mg/L	03-JUL-12	03-JUL-12	R2392203
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
pH							
pH	8.50		0.10	pH units		29-JUN-12	R2390568

* 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

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-WP	Water	Alkalinity	APHA 2320B

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong 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.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA SW846 8260B REV 2 SEPT 1994

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-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

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
ETL-SOLIDS-CALC-WP	Water	TDS calculated	CALCULATION
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB# 1310-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.

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-WS-WP	Water	F2-F4 PHC method	EPA 3510/8000

This is the determination of the Petroleum Hydrocarbon fractions in water (F2, F3 and F4). A water sample volume of 200 mL in a 250 mL glass amber bottle is shaken with 10 mL hexane for two hours on a wrist action shaker, and then sonicated for 5 minutes. After extraction, the solvent layer is drawn off and analyzed against C10, C16 and C34 standards on a gas chromatograph equipped with a flame ionization detector.

FC-MPN-WP	Water	Fecal Coliform	APHA 9221A-C

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**
IONBALANCE-OP05-WP	Water	Ion Balance Calculation No Reporting	APHA 1030E
MET-T-MS-WP	Water	Total Metals by ICP-MS	U.S. EPA 200.8-T

Total Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the examination of Water and Wastewater Method 3030E and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.

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-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

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 Phosphorous 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-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

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**

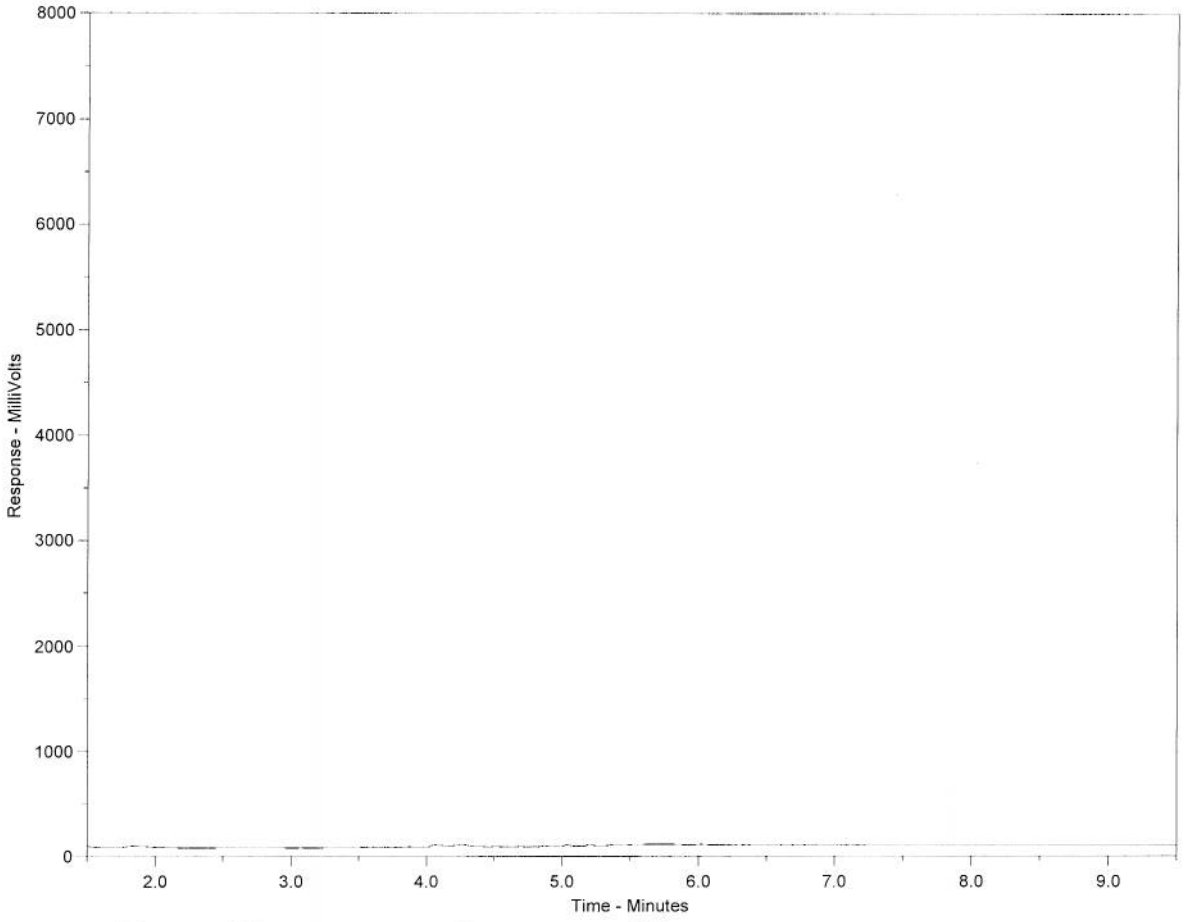
GLOSSARY OF REPORT TERMS

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.

Hydrocarbon Distribution Report

ALS Sample ID: L1170026-1
Client ID: WHA-2



<-nC10---------nC16------------------------nC34-----------------nC50-------------------------------->
<-------nC11----------------------nC30--->
<----Gasoline--------------> <-------------------Heavy Oils-->
|--------------Diesel----------------|

The Canada Wide Standard Hydrocarbon Distribution Report 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 as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

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 with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Chain of Custody / Analytical Request Form

L1170026-COFC

COC # L1170026

Page 1 of 1

Report To				Service Requested (Rush for routine analysis subject to availability)
Company:	Hamlet of Whale Cove			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Brock Junkin	☑ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	P.O. Box 120, Whale Cove, NU X0C 0J0	Email 1: sao@whalecove.ca		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: mlusty@gov.nu.ca		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	(867) 896-9961 Fax: (867) 896-9109	Email 3:		**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☑ Yes ☐ No	Job #: Whale Cove Monitoring Program		
Company:		PO / AFE:		
Contact:		LSD:		
Address:				
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact: Craig Riddell	Sampler: Barto Ulurksit	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Carbonaceous BOD	Biochemical Oxygen Demand	Total Organic Carbon	Ammonia by colour	Oil and Grease, Total	Phosphorus, Total	Phenol [4AAP]	Routine Soluble + Metal Scan	Total Suispended Solids	Fecal Coliforms	BTEX plus F1-F4	Polyaromatic Hydrocarbons	Number of Containers
	~~WHA-2~~	~~27/06/12~~	9:30	wastewater	P	X	P	P	P	P	P	P	P	P	P	P	14
	~~WHA-3~~	27/06/12	10:20	wastewater	P	X	P	P	P	P	P	P	P	P			8
	~~WHA-4~~	27/06/12	10:00	wastewater	P	X	P	P	P	P	P	P	P	P			8
	[redacted]																
	[redacted]																

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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 provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Barto Ulurksit	June 27 2012	11:00	[illegible]	28-Jun-12	14:52	°C				

GENF 20.00 Front

Hamlet of Whale Cove
ATTN: BROCK JUNKIN
PO Box 120
Whale Cove NU X0C 0J0

Date Received: 11-OCT-12
Report Date: 23-OCT-12 15:28 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: **L1222380**
Project P.O. #: NOT SUBMITTED
Job Reference: WHALE COVE MONITORING PROGRAM
C of C Numbers:
Legal Site Desc:

Paul Nicolas
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1222380-1 WHA-2							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
Toluene	<0.0010		0.0010	mg/L		16-OCT-12	R2456769
Ethyl benzene	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
o-Xylene	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
m+p-Xylenes	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
Xylenes	<0.0015		0.0015	mg/L		16-OCT-12	R2456769
F1 (C6-C10)	<0.10		0.10	mg/L		16-OCT-12	R2456769
Surrogate: 4-Bromofluorobenzene (SS)	92.9		70-130	%		16-OCT-12	R2456769
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		22-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		22-OCT-12	
F3-PAH	<0.25		0.25	mg/L		22-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		22-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R2454572
F3 (C16-C34)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R2454572
F4 (C34-C50)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R2454572
Surrogate: 2-Bromobenzotrifluoride	99.0		65-135	%	12-OCT-12	12-OCT-12	R2454572
Miscellaneous Parameters							
Ammonia, Total (as N)	0.359		0.010	mg/L		15-OCT-12	R2457086
Biochemical Oxygen Demand	<6.0		6.0	mg/L		12-OCT-12	R2460710
BOD Carbonaceous	<6.0		6.0	mg/L		12-OCT-12	R2460710
Fecal Coliforms	930		3	MPN/100mL		16-OCT-12	R2456899
Oil and Grease, Total	<2.0		2.0	mg/L	15-OCT-12	15-OCT-12	R2455674
Phenols (4AAP)	<0.0010		0.0010	mg/L	17-OCT-12	17-OCT-12	R2457673
Phosphorus (P)-Total	0.028		0.010	mg/L		17-OCT-12	R2457095
Total Organic Carbon	6.8		1.0	mg/L		18-OCT-12	R2459683
Total Suspended Solids	<5.0		5.0	mg/L		12-OCT-12	R2455357
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Acenaphthene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Acenaphthylene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Anthracene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Acridine	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(a)anthracene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Chrysene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	12-OCT-12	20-OCT-12	R2459881
Fluoranthene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Fluorene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Naphthalene	<0.000050		0.000050	mg/L	12-OCT-12	20-OCT-12	R2459881
Phenanthrene	<0.000050		0.000050	mg/L	12-OCT-12	20-OCT-12	R2459881
Pyrene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Quinoline	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	12-OCT-12	20-OCT-12	R2459881

* 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
L1222380-1 WHA-2							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
Polyaromatic Hydrocarbons (PAHs)							
Surrogate: Acenaphthene d10	98.6		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Acridine d9	110.2		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Chrysene d12	92.8		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Naphthalene d8	86.8		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Phenanthrene d10	108.6		50-150	%	12-OCT-12	20-OCT-12	R2459881
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	180		20	mg/L		11-OCT-12	R2453845
Bicarbonate (HCO3)	220		24	mg/L		11-OCT-12	R2453845
Carbonate (CO3)	<12		12	mg/L		11-OCT-12	R2453845
Hydroxide (OH)	<6.8		6.8	mg/L		11-OCT-12	R2453845
Chloride by Ion Chromatography							
Chloride	80.5		0.50	mg/L		12-OCT-12	R2455237
Conductivity							
Conductivity	734		20	umhos/cm		11-OCT-12	R2453845
Hardness Calculated							
Hardness (as CaCO3)	225		0.30	mg/L		19-OCT-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	0.122		0.050	mg/L		12-OCT-12	R2455237
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.122		0.071	mg/L		15-OCT-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		12-OCT-12	R2455237
Sulfate by Ion Chromatography							
Sulfate	73.1		0.50	mg/L		12-OCT-12	R2455237
TDS calculated							
TDS (Calculated)	405		5.0	mg/L		19-OCT-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.513		0.020	mg/L	18-OCT-12	18-OCT-12	R2458362
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Arsenic (As)-Total	0.0015		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Barium (Ba)-Total	0.0361		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Boron (B)-Total	0.229		0.030	mg/L	18-OCT-12	18-OCT-12	R2458362
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	18-OCT-12	18-OCT-12	R2458362
Calcium (Ca)-Total	63.8		0.20	mg/L	18-OCT-12	18-OCT-12	R2458362
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Cobalt (Co)-Total	0.00079		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Copper (Cu)-Total	0.0029		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Iron (Fe)-Total	1.10		0.10	mg/L	18-OCT-12	18-OCT-12	R2458362
Lead (Pb)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Lithium (Li)-Total	0.0062		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Magnesium (Mg)-Total	16.0		0.050	mg/L	18-OCT-12	18-OCT-12	R2458362
Manganese (Mn)-Total	0.256		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Molybdenum (Mo)-Total	0.0359		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Nickel (Ni)-Total	0.0033		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Phosphorus (P)-Total	<0.50		0.50	mg/L	18-OCT-12	18-OCT-12	R2458362
Potassium (K)-Total	8.40		0.10	mg/L	18-OCT-12	18-OCT-12	R2458362
Rubidium (Rb)-Total	0.00589		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Selenium (Se)-Total	<0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R2458362

* 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
L1222380-1 WHA-2							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
Total Metals by ICP-MS							
Silicon (Si)-Total	2.45		0.30	mg/L	18-OCT-12	18-OCT-12	R2458362
Silver (Ag)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Sodium (Na)-Total	54.6		0.050	mg/L	18-OCT-12	18-OCT-12	R2458362
Strontium (Sr)-Total	0.442		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R2458362
Thorium (Th)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Tin (Sn)-Total	<0.00060		0.00060	mg/L	18-OCT-12	18-OCT-12	R2458362
Titanium (Ti)-Total	0.0030		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Tungsten (W)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Uranium (U)-Total	0.00138		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Vanadium (V)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Zinc (Zn)-Total	0.025		0.020	mg/L	18-OCT-12	18-OCT-12	R2458362
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
pH							
pH	8.14		0.10	pH units		11-OCT-12	R2453845
L1222380-2 WHA-3							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
Toluene	<0.0010		0.0010	mg/L		16-OCT-12	R2456769
Ethyl benzene	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
o-Xylene	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
m+p-Xylenes	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
Xylenes	<0.0015		0.0015	mg/L		16-OCT-12	R2456769
F1 (C6-C10)	<0.10		0.10	mg/L		16-OCT-12	R2456769
Surrogate: 4-Bromofluorobenzene (SS)	101.6		70-130	%		16-OCT-12	R2456769
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		22-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		22-OCT-12	
F3-PAH	0.50		0.25	mg/L		22-OCT-12	
Total Hydrocarbons (C6-C50)	0.50		0.44	mg/L		22-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R2454572
F3 (C16-C34)	0.50		0.25	mg/L	12-OCT-12	12-OCT-12	R2454572
F4 (C34-C50)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R2454572
Surrogate: 2-Bromobenzotrifluoride	99.1		65-135	%	12-OCT-12	12-OCT-12	R2454572
Miscellaneous Parameters							
Ammonia, Total (as N)	15.4	DLA	1.0	mg/L		17-OCT-12	R2457452
Biochemical Oxygen Demand	<6.0		6.0	mg/L		12-OCT-12	R2460710
BOD Carbonaceous	<6.0		6.0	mg/L		12-OCT-12	R2460710
Fecal Coliforms	>110000		3	MPN/100mL		16-OCT-12	R2456899
Oil and Grease, Total	<2.0		2.0	mg/L	15-OCT-12	15-OCT-12	R2455674
Phenols (4AAP)	<0.0010		0.0010	mg/L	17-OCT-12	17-OCT-12	R2457673
Phosphorus (P)-Total	4.76		0.010	mg/L		17-OCT-12	R2457095
Total Organic Carbon	23.6		1.0	mg/L		18-OCT-12	R2459683
Total Suspended Solids	<5.0		5.0	mg/L		12-OCT-12	R2455357
Polyaromatic Hydrocarbons (PAHs)							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1222380-2 WHA-3							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Acenaphthene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Acenaphthylene	<0.000040	DLM	0.000040	mg/L	12-OCT-12	20-OCT-12	R2459881
Anthracene	<0.000020	DLM	0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Acridine	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(a)anthracene	<0.000020	DLM	0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(a)pyrene	<0.000010	DLM	0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(b&j)fluoranthene	<0.000020	DLM	0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Chrysene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	12-OCT-12	20-OCT-12	R2459881
Fluoranthene	<0.000040	DLM	0.000040	mg/L	12-OCT-12	20-OCT-12	R2459881
Fluorene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Indeno(1,2,3-cd)pyrene	<0.000030	DLM	0.000030	mg/L	12-OCT-12	20-OCT-12	R2459881
Naphthalene	<0.000050		0.000050	mg/L	12-OCT-12	20-OCT-12	R2459881
Phenanthrene	<0.00010	DLM	0.00010	mg/L	12-OCT-12	20-OCT-12	R2459881
Pyrene	<0.000040	DLM	0.000040	mg/L	12-OCT-12	20-OCT-12	R2459881
Quinoline	<0.000040	DLM	0.000040	mg/L	12-OCT-12	20-OCT-12	R2459881
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	12-OCT-12	20-OCT-12	R2459881
Surrogate: Acenaphthene d10	86.5		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Acridine d9	102.5		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Chrysene d12	78.9		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Naphthalene d8	68.9		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Phenanthrene d10	91.5		50-150	%	12-OCT-12	20-OCT-12	R2459881
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	168		20	mg/L		11-OCT-12	R2453845
Bicarbonate (HCO3)	205		24	mg/L		11-OCT-12	R2453845
Carbonate (CO3)	<12		12	mg/L		11-OCT-12	R2453845
Hydroxide (OH)	<6.8		6.8	mg/L		11-OCT-12	R2453845
Chloride by Ion Chromatography							
Chloride	84.6		0.50	mg/L		12-OCT-12	R2455237
Conductivity							
Conductivity	696		20	umhos/cm		11-OCT-12	R2453845
Hardness Calculated							
Hardness (as CaCO3)	104		0.30	mg/L		19-OCT-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	1.19		0.050	mg/L		12-OCT-12	R2455237
Nitrate+Nitrite							
Nitrate and Nitrite as N	1.24		0.071	mg/L		15-OCT-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	0.055		0.050	mg/L		12-OCT-12	R2455237
Sulfate by Ion Chromatography							
Sulfate	27.1		0.50	mg/L		12-OCT-12	R2455237
TDS calculated							
TDS (Calculated)	352		5.0	mg/L		19-OCT-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.453		0.020	mg/L	18-OCT-12	18-OCT-12	R2458362
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Arsenic (As)-Total	0.0012		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362

* 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
L1222380-2 WHA-3							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
Total Metals by ICP-MS							
Barium (Ba)-Total	0.00626		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Boron (B)-Total	0.172		0.030	mg/L	18-OCT-12	18-OCT-12	R2458362
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	18-OCT-12	18-OCT-12	R2458362
Calcium (Ca)-Total	30.5		0.20	mg/L	18-OCT-12	18-OCT-12	R2458362
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Copper (Cu)-Total	0.0210		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Iron (Fe)-Total	0.48		0.10	mg/L	18-OCT-12	18-OCT-12	R2458362
Lead (Pb)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Lithium (Li)-Total	0.0045		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Magnesium (Mg)-Total	6.82		0.050	mg/L	18-OCT-12	18-OCT-12	R2458362
Manganese (Mn)-Total	0.0539		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Molybdenum (Mo)-Total	0.00136		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Nickel (Ni)-Total	0.0028		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Phosphorus (P)-Total	5.67		0.50	mg/L	18-OCT-12	18-OCT-12	R2458362
Potassium (K)-Total	18.9		0.10	mg/L	18-OCT-12	18-OCT-12	R2458362
Rubidium (Rb)-Total	0.0198		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Selenium (Se)-Total	<0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R2458362
Silicon (Si)-Total	2.15		0.30	mg/L	18-OCT-12	18-OCT-12	R2458362
Silver (Ag)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Sodium (Na)-Total	77.7		0.050	mg/L	18-OCT-12	18-OCT-12	R2458362
Strontium (Sr)-Total	0.119		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R2458362
Thorium (Th)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Tin (Sn)-Total	0.00098		0.00060	mg/L	18-OCT-12	18-OCT-12	R2458362
Titanium (Ti)-Total	0.0059		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Tungsten (W)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Uranium (U)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Vanadium (V)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Zinc (Zn)-Total	0.028		0.020	mg/L	18-OCT-12	18-OCT-12	R2458362
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
pH							
pH	8.06		0.10	pH units		11-OCT-12	R2453845
L1222380-3 WHA-4							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
Toluene	<0.0010		0.0010	mg/L		16-OCT-12	R2456769
Ethyl benzene	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
o-Xylene	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
m+p-Xylenes	<0.00050		0.00050	mg/L		16-OCT-12	R2456769
Xylenes	<0.0015		0.0015	mg/L		16-OCT-12	R2456769
F1 (C6-C10)	<0.10		0.10	mg/L		16-OCT-12	R2456769
Surrogate: 4-Bromofluorobenzene (SS)	95.5		70-130	%		16-OCT-12	R2456769
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
L1222380-3 WHA-4							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		22-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		22-OCT-12	
F3-PAH	<0.25		0.25	mg/L		22-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		22-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R2454572
F3 (C16-C34)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R2454572
F4 (C34-C50)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R2454572
Surrogate: 2-Bromobenzotrifluoride	116.4		65-135	%	12-OCT-12	12-OCT-12	R2454572
Miscellaneous Parameters							
Ammonia, Total (as N)	0.020		0.010	mg/L		15-OCT-12	R2457086
Biochemical Oxygen Demand	<6.0		6.0	mg/L		12-OCT-12	R2460710
BOD Carbonaceous	<6.0		6.0	mg/L		12-OCT-12	R2460710
Fecal Coliforms	<3		3	MPN/100mL		16-OCT-12	R2456899
Oil and Grease, Total	<2.0		2.0	mg/L	15-OCT-12	15-OCT-12	R2455674
Phenols (4AAP)	<0.0010		0.0010	mg/L	17-OCT-12	17-OCT-12	R2457673
Phosphorus (P)-Total	0.644		0.010	mg/L		17-OCT-12	R2457095
Total Organic Carbon	12.0		1.0	mg/L		18-OCT-12	R2459683
Total Suspended Solids	<5.0		5.0	mg/L		12-OCT-12	R2455357
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Acenaphthene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Acenaphthylene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Anthracene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Acridine	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(a)anthracene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Chrysene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	12-OCT-12	20-OCT-12	R2459881
Fluoranthene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Fluorene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Naphthalene	<0.00010	DLM	0.00010	mg/L	12-OCT-12	20-OCT-12	R2459881
Phenanthrene	<0.000050		0.000050	mg/L	12-OCT-12	20-OCT-12	R2459881
Pyrene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R2459881
Quinoline	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	12-OCT-12	20-OCT-12	R2459881
Surrogate: Acenaphthene d10	94.1		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Acridine d9	110.5		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Chrysene d12	94.3		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Naphthalene d8	79.0		50-150	%	12-OCT-12	20-OCT-12	R2459881
Surrogate: Phenanthrene d10	101.3		50-150	%	12-OCT-12	20-OCT-12	R2459881
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	220		20	mg/L		11-OCT-12	R2453845
Bicarbonate (HCO3)	191		24	mg/L		11-OCT-12	R2453845
Carbonate (CO3)	38		12	mg/L		11-OCT-12	R2453845

* 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
L1222380-3 WHA-4							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
Alkalinity							
Hydroxide (OH)	<6.8		6.8	mg/L		11-OCT-12	R2453845
Chloride by Ion Chromatography							
Chloride	119		0.50	mg/L		12-OCT-12	R2455237
Conductivity							
Conductivity	819		20	umhos/cm		11-OCT-12	R2453845
Hardness Calculated							
Hardness (as CaCO3)	197		0.30	mg/L		19-OCT-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		12-OCT-12	R2455237
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		15-OCT-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		12-OCT-12	R2455237
Sulfate by Ion Chromatography							
Sulfate	26.2		0.50	mg/L		12-OCT-12	R2455237
TDS calculated							
TDS (Calculated)	472		5.0	mg/L		19-OCT-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.219		0.020	mg/L	18-OCT-12	18-OCT-12	R2458362
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Arsenic (As)-Total	0.0062		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Barium (Ba)-Total	0.0166		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Boron (B)-Total	0.168		0.030	mg/L	18-OCT-12	18-OCT-12	R2458362
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	18-OCT-12	18-OCT-12	R2458362
Calcium (Ca)-Total	62.0		0.20	mg/L	18-OCT-12	18-OCT-12	R2458362
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Copper (Cu)-Total	0.0048		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Iron (Fe)-Total	<0.10		0.10	mg/L	18-OCT-12	18-OCT-12	R2458362
Lead (Pb)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Lithium (Li)-Total	0.0078		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Magnesium (Mg)-Total	10.2		0.050	mg/L	18-OCT-12	18-OCT-12	R2458362
Manganese (Mn)-Total	0.0078		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Molybdenum (Mo)-Total	0.00140		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Nickel (Ni)-Total	0.0031		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Phosphorus (P)-Total	0.76		0.50	mg/L	18-OCT-12	18-OCT-12	R2458362
Potassium (K)-Total	19.2		0.10	mg/L	18-OCT-12	18-OCT-12	R2458362
Rubidium (Rb)-Total	0.00972		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Selenium (Se)-Total	<0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R2458362
Silicon (Si)-Total	0.31		0.30	mg/L	18-OCT-12	18-OCT-12	R2458362
Silver (Ag)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Sodium (Na)-Total	103		0.050	mg/L	18-OCT-12	18-OCT-12	R2458362
Strontium (Sr)-Total	0.336		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R2458362
Thorium (Th)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Tin (Sn)-Total	<0.00060		0.00060	mg/L	18-OCT-12	18-OCT-12	R2458362
Titanium (Ti)-Total	0.0026		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Tungsten (W)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362

* 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
L1222380-3 WHA-4							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
Total Metals by ICP-MS							
Uranium (U)-Total	0.00175		0.00050	mg/L	18-OCT-12	18-OCT-12	R2458362
Vanadium (V)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R2458362
Zinc (Zn)-Total	<0.020		0.020	mg/L	18-OCT-12	18-OCT-12	R2458362
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
pH							
pH	9.19		0.10	pH units		11-OCT-12	R2453845

* 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 For 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-TOT-WP	Water	Alkalinity	APHA 2320B

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong 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.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA SW846 8260B REV 2 SEPT 1994

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-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

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
ETL-SOLIDS-CALC-WP	Water	TDS calculated	CALCULATION
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB# 1310-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-WS-WP	Water	F2-F4 PHC method	EPA 3510/8000

This is the determination of the Petroleum Hydrocarbon fractions in water (F2, F3 and F4). A water sample volume of 200 mL in a 250 mL glass amber bottle is shaken with 10 mL hexane for two hours on a wrist action shaker, and then sonicated for 5 minutes. After extraction, the solvent layer is drawn off and analyzed against C10, C16 and C34 standards on a gas chromatograph equipped with a flame ionization detector.

FC-MPN-WP	Water	Fecal Coliform	APHA 9221A-C

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.

IONBALANCE-OP05-WP	Water	Ion Balance Calculation No Reporting	APHA 1030E
MET-T-MS-WP	Water	Total Metals by ICP-MS	U.S. EPA 200.8-T

Total Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the examination of Water and Wastewater Method 3030E and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.

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-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

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 Phosphorous 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-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

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.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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:

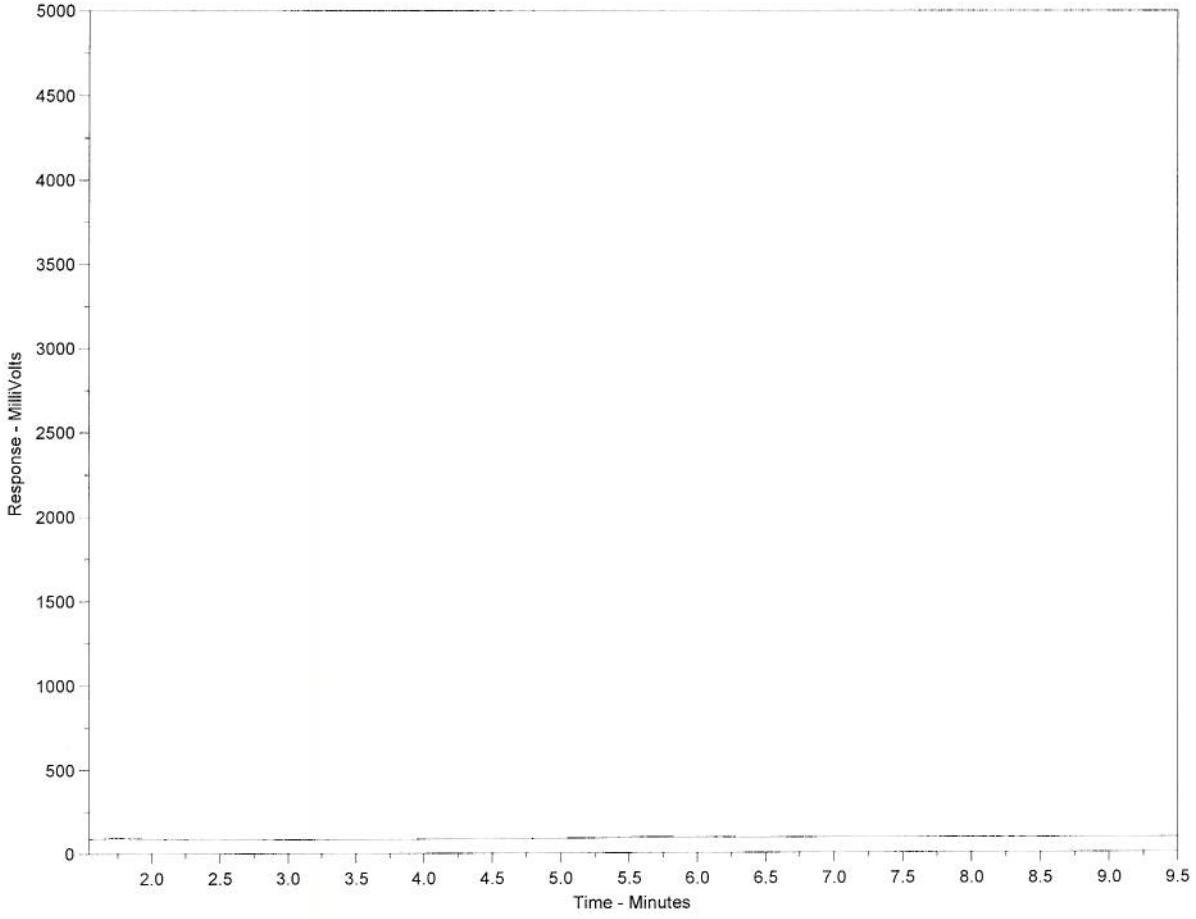
GLOSSARY OF REPORT TERMS

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.

Hydrocarbon Distribution Report

ALS Sample ID: L1222380-1
Client ID: WHA-2



<-nC10---------nC16-------------------------nC34-------------------nC50-------------------------------->
<-------nC11----------------------nC30-->
<----Gasoline--------------> <-------------------Heavy Oils-->
|---------------Diesel----------------|

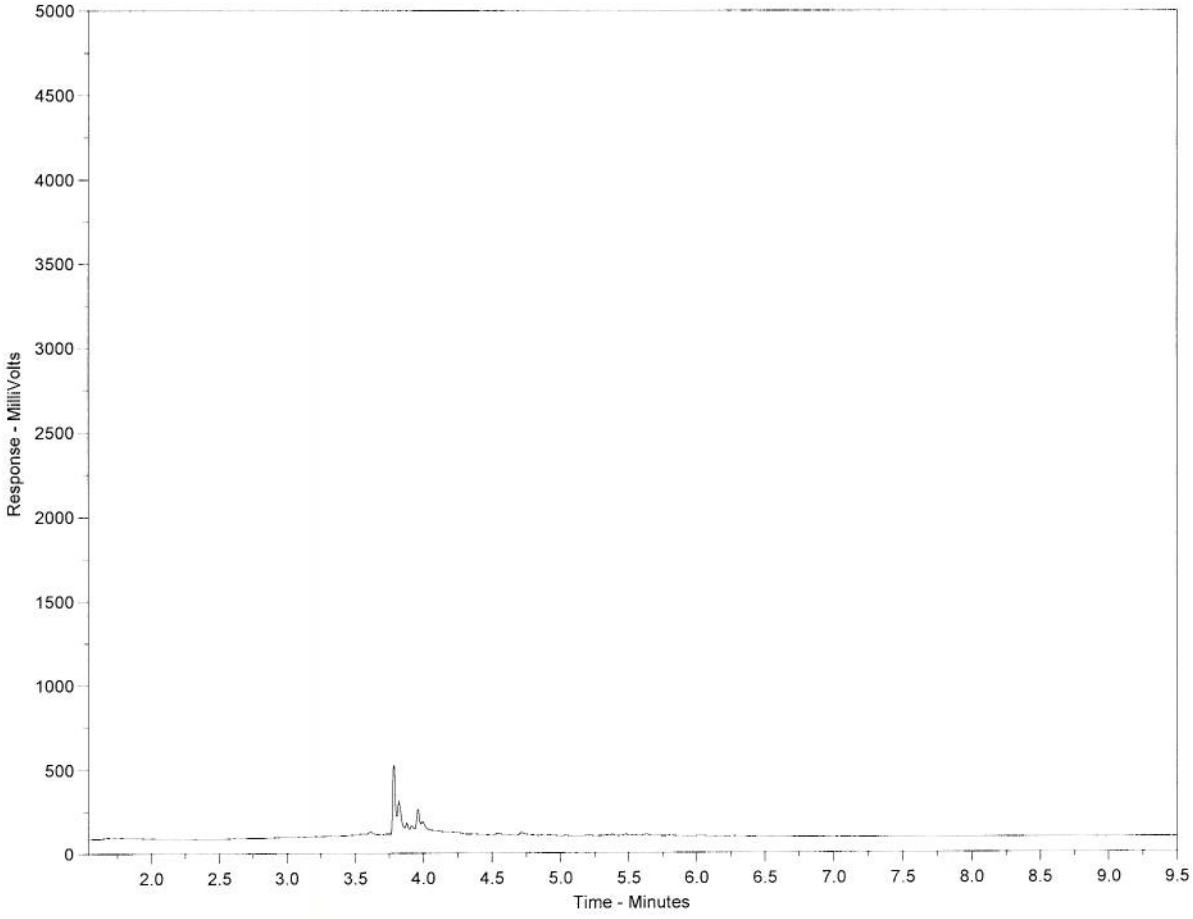
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

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 with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: L1222380-2
Client ID: WHA-3



<-nC10---------nC16-------------------------nC34------------------nC50-------------------------------->
<-------nC11----------------------nC30-->
<----Gasoline-------------> <-------------------Heavy Oils-->
|---------------Diesel----------------|

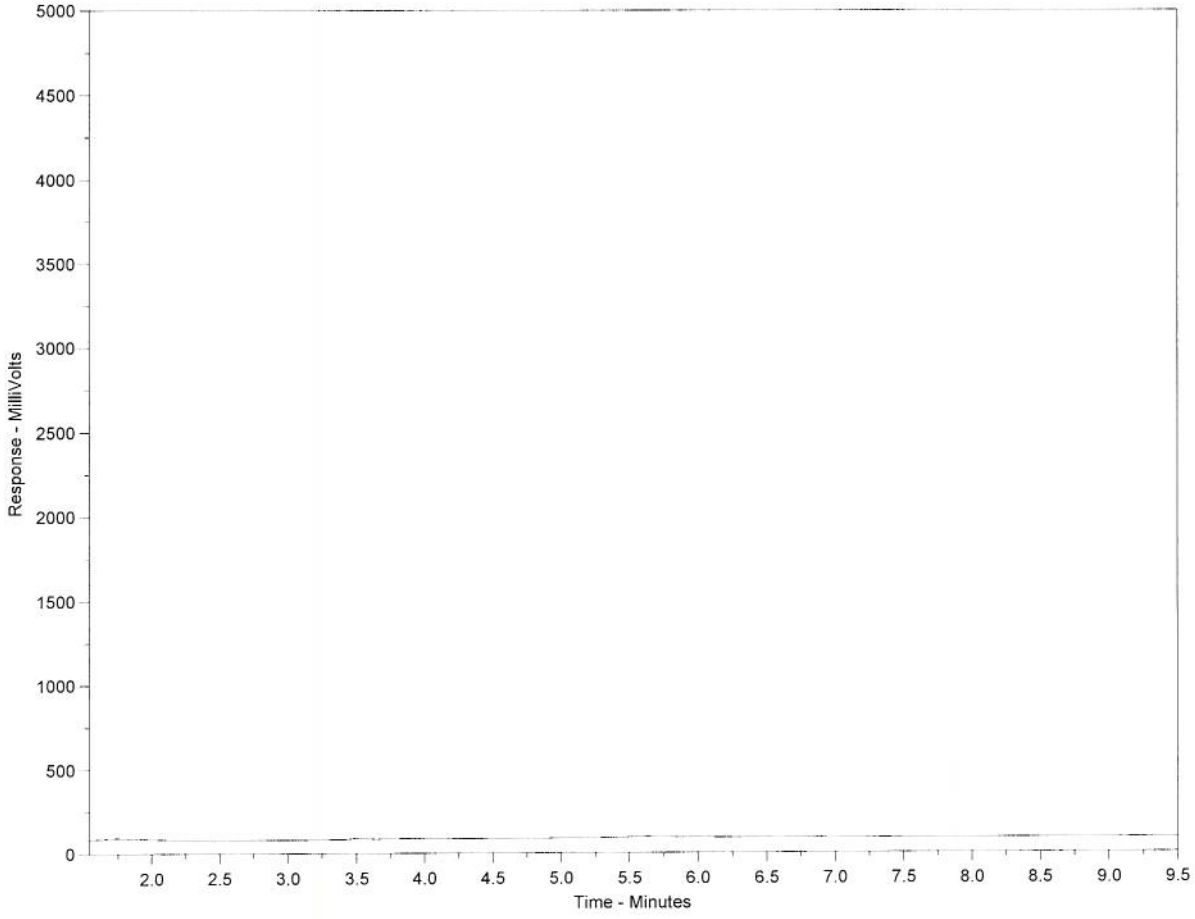
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

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 with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: L1222380-3
Client ID: WHA-4



<-nC10---------nC16------------------------nC34------------------nC50---------------------------------->
<-------nC11----------------------nC30-->
<----Gasoline-------------> <------------------Heavy Oils-->
|---------------Diesel----------------|

The Canada Wide Standard Hydrocarbon Distribution Report 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 as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

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 with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

L1222380

COC # _____

L1222380-COFC

Report To		Report Format / Distribution	Service Requested
Company:	Hamlet of Whale Cove	☑ Standard ☐ Other	◉ Regular (Standard T
Contact:	Brock Junkin	☑ PDF ☐ Excel ☐ Digital ☑ Fax	○ Priority (2-4 Busines.
Address:	P.O. Box 120, Whale Cove, NU X0C 0J0	Email 1: sao@whalecove.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: mlusty@gov.nu.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	(867) 896-9961 Fax: (867) 896-9109	Email 3:	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	
Hardcopy of Invoice with Report?	☑ Yes ☐ No	Job #: Whale Cove Monitoring Program	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #:	
Lab Work Order # (lab use only)		ALS Contact: Craig Riddell	Sampler:

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Carbonaceous BOD	Biochemical Oxygen Demand	Total Organic Carbon	Ammonia by colour	Oil and Grease, Total	Phosphorus, Total	Phenol [4AAP]	Routine Soluble + Metal Scan	Total Suispended Solids	Fecal Coliforms	BTEX plus F1-F4	Polyaromatic Hydrocarbons	Number of Containers
	WHA-2	10-Oct-12	Mid-Morn	Surface Water													
	WHA-3	10-Oct-12	Mid-Morn	Surface Water													
	WHA-4	10-Oct-12	Mid-Morn	Surface Water													
	WHA-7																
	WHA-8																

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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 provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Terri-Rose Teenar			CT	Oct 11/12	2:05pm	6.2 °C				

HAMLET OF WHALE COVE
POST OFFICE BOX 120
WHALE COVE, NUNAVUT, X0C 0J0
Telephone: (867) 896-9961 ~ Fax: (867) 89

Water Licence Sampling Field Log

Name of Sampler(s): Terri-Rose Teenar

Date of Sampling: October 10th, 2013

Time of Sampling: Mid-morning

Monitoring Station Number: WHA-2

GPS Coordinates: N 62°10' 176" W 92°35'665" (bermed pond at dump)

Weather Conditions: _____

Samples:

- [x] 1 L Routine
- [x] 500 mL BOD
- [x] 250 mL Metals + Pres
- [x] 250 mL Nutrients + Pres
- [x] ***125 mL Sterile Bacteria Bottle[1]***
- [x] 250 mL Amber Phenols + Pres
- [x] ***1 L Amber Oil & Grease + Pres[1]***
- [x] 100 mL Amber TOC + Pres
- [x] ***1 L Amber PAH + Pres[1]***
- [x] ***3 x 40 mL BTEX, F1 vials + Pres[1]***
- [x] ***2 x 250 mL Amber F2-F4 + Pres[1]***

Other:

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

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

_____

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Footnote 1) Do not rinse this bottle but rinse all others in the sampling pond

HAMLET OF WHALE COVE
POST OFFICE BOX 120
WHALE COVE, NUNAVUT, X0C 0J0
Telephone: (867) 896-9961 ~ Fax: (867) 896-9

L1222380-COFC

Water Licence Sampling Field Log

Name of Sampler(s): Terri-Rose Teenar

Date of Sampling: October 10th, 2013

Time of Sampling: Mid-morning

Monitoring Station Number: WHA-3

GPS Coordinates: N 62°10' 112" W 92°35'496" (lagoon on south side)

Weather Conditions: _____

Samples:

- [x] 1 L Routine
- [x] 500 mL BOD
- [x] 250 mL Metals + Pres
- [x] 250 mL Nutrients + Pres
- [x] ***125 mL Sterile Bacteria Bottle[1]***
- [x] 250 mL Amber Phenols + Pres
- [x] ***1 L Amber Oil & Grease + Pres[1]***
- [x] 100 mL Amber TOC + Pres

- [x] ***1 L Amber PAH + Pres[1]***
- [x] ***3 x 40 mL BTEX, F1 vials + Pres[1]***
- [x] ***2 x 250 mL Amber F2-F4 + Pres[1]***

Other:

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

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

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Footnote 1) Do not rinse this bottle but rinse all others in the sampling pond

HAMLET OF WHALE COVE
POST OFFICE BOX 120
WHALE COVE, NUNAVUT, X0C 0J0
Telephone: (867) 896-9961 ~ Fax: (867) 896-91

L1222380-COFC

Water Licence Sampling Field Log

Name of Sampler(s): Terri-Rose Teenar

Date of Sampling: October 10th, 2013

Time of Sampling: Mid-morning

Monitoring Station Number: WHA-4

GPS Coordinates: N 62°10' 552" W 92°35'712" (below lagoon in water course)

Weather Conditions: _____

Samples:

- [x] 1 L Routine
- [x] 500 mL BOD
- [x] 250 mL Metals + Pres
- [x] 250 mL Nutrients + Pres
- [x] ***125 mL Sterile Bacteria Bottle[1]***
- [x] 250 mL Amber Phenols + Pres
- [x] ***1 L Amber Oil & Grease + Pres[1]***
- [x] 100 mL Amber TOC + Pres
- [x] ***1 L Amber PAH + Pres[1]***
- [x] ***3 x 40 mL BTEX, F1 vials + Pres[1]***
- [x] ***2 x 250 mL Amber F2-F4 + Pres[1]***

Other:

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

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

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Footnote 1) Do not rinse this bottle but rinse all others in the sampling pond

Hamlet of Whale Cove
ATTN: BROCK JUNKIN
PO Box 120
Whale Cove NU X0C 0J0

Date Received: 28-SEP-12
Report Date: 11-OCT-12 15:39 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: **L1216427**
Project P.O. #: NOT SUBMITTED
Job Reference: WHALE COVE MONITORING PROGRAM
C of C Numbers:
Legal Site Desc:

Paul Nicolas
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216427-1 WHA-2							
Sampled By: CLIENT on 26-SEP-12 @ 10:00							
Matrix: SURFACE WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
Toluene	<0.0010		0.0010	mg/L		05-OCT-12	R2448472
Ethyl benzene	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
o-Xylene	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
m+p-Xylenes	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
Xylenes	<0.0015		0.0015	mg/L		05-OCT-12	R2448472
F1 (C6-C10)	<0.10		0.10	mg/L		05-OCT-12	R2448472
Surrogate: 4-Bromofluorobenzene (SS)	91.1		70-130	%		05-OCT-12	R2448472
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		10-OCT-12	
F3-PAH	<0.25		0.25	mg/L		10-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		10-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F3 (C16-C34)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F4 (C34-C50)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
Surrogate: 2-Bromobenzotrifluoride	102.5		65-135	%	29-SEP-12	29-SEP-12	R2446755
Miscellaneous Parameters							
Ammonia, Total (as N)	1.53	DLA	0.10	mg/L		01-OCT-12	R2447410
Biochemical Oxygen Demand	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448952
BOD Carbonaceous	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448951
Fecal Coliforms	430		3	MPN/100mL		02-OCT-12	R2448486
Oil and Grease, Total	<2.0		2.0	mg/L	02-OCT-12	02-OCT-12	R2447533
Phenols (4AAP)	<0.0010		0.0010	mg/L	05-OCT-12	05-OCT-12	R2450272
Phosphorus (P)-Total	0.104		0.010	mg/L		04-OCT-12	R2449043
Total Organic Carbon	15.2		1.0	mg/L		03-OCT-12	R2449058
Total Suspended Solids	10.0		5.0	mg/L		01-OCT-12	R2447372
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Acridine	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Chrysene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluoranthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluorene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Naphthalene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Phenanthrene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Quinoline	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	03-OCT-12	09-OCT-12	R2452323

* 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
L1216427-1 WHA-2							
Sampled By: CLIENT on 26-SEP-12 @ 10:00							
Matrix: SURFACE WATER							
Polyaromatic Hydrocarbons (PAHs)							
Surrogate: Acenaphthene d10	103.0		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acridine d9	97.0		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Chrysene d12	82.8		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Naphthalene d8	100.8		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Phenanthrene d10	95.1		50-150	%	03-OCT-12	09-OCT-12	R2452323
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	198		20	mg/L		29-SEP-12	R2446360
Bicarbonate (HCO3)	241		24	mg/L		29-SEP-12	R2446360
Carbonate (CO3)	<12		12	mg/L		29-SEP-12	R2446360
Hydroxide (OH)	<6.8		6.8	mg/L		29-SEP-12	R2446360
Chloride by Ion Chromatography							
Chloride	98.6		0.50	mg/L		29-SEP-12	R2448095
Conductivity							
Conductivity	897		20	umhos/cm		29-SEP-12	R2446360
Hardness Calculated							
Hardness (as CaCO3)	301		0.30	mg/L		04-OCT-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		29-SEP-12	R2448095
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		03-OCT-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		29-SEP-12	R2448095
Sulfate by Ion Chromatography							
Sulfate	116		0.50	mg/L		29-SEP-12	R2448095
TDS calculated							
TDS (Calculated)	519		5.0	mg/L		04-OCT-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.030		0.020	mg/L	02-OCT-12	02-OCT-12	R2448891
Antimony (Sb)-Total	0.0032		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Arsenic (As)-Total	0.0019		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Barium (Ba)-Total	0.0391		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Boron (B)-Total	0.235		0.030	mg/L	02-OCT-12	02-OCT-12	R2448891
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	02-OCT-12	02-OCT-12	R2448891
Calcium (Ca)-Total	96.1		0.20	mg/L	02-OCT-12	02-OCT-12	R2448891
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Cobalt (Co)-Total	0.00146		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Copper (Cu)-Total	0.0112		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Iron (Fe)-Total	1.64		0.10	mg/L	02-OCT-12	02-OCT-12	R2448891
Lead (Pb)-Total	0.0016		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Lithium (Li)-Total	0.0077		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Magnesium (Mg)-Total	14.9		0.050	mg/L	02-OCT-12	02-OCT-12	R2448891
Manganese (Mn)-Total	0.331		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Molybdenum (Mo)-Total	0.0450		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Nickel (Ni)-Total	0.0084		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Phosphorus (P)-Total	<0.50		0.50	mg/L	02-OCT-12	02-OCT-12	R2448891
Potassium (K)-Total	10.4		0.10	mg/L	02-OCT-12	02-OCT-12	R2448891
Rubidium (Rb)-Total	0.00750		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Selenium (Se)-Total	<0.0050		0.0050	mg/L	02-OCT-12	02-OCT-12	R2448891

* 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
L1216427-1 WHA-2							
Sampled By: CLIENT on 26-SEP-12 @ 10:00							
Matrix: SURFACE WATER							
Total Metals by ICP-MS							
Silicon (Si)-Total	2.52		0.30	mg/L	02-OCT-12	02-OCT-12	R2448891
Silver (Ag)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Sodium (Na)-Total	64.8		0.050	mg/L	02-OCT-12	02-OCT-12	R2448891
Strontium (Sr)-Total	0.583		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	02-OCT-12	02-OCT-12	R2448891
Thorium (Th)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Tin (Sn)-Total	<0.00060		0.00060	mg/L	02-OCT-12	02-OCT-12	R2448891
Titanium (Ti)-Total	0.0026		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Tungsten (W)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Uranium (U)-Total	0.00147		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Vanadium (V)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Zinc (Zn)-Total	0.081		0.020	mg/L	02-OCT-12	02-OCT-12	R2448891
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
pH							
pH	7.99		0.10	pH units		29-SEP-12	R2446360
L1216427-2 WHA-3							
Sampled By: CLIENT on 26-SEP-12 @ 10:20							
Matrix: SURFACE WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
Toluene	<0.0010		0.0010	mg/L		05-OCT-12	R2448472
Ethyl benzene	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
o-Xylene	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
m+p-Xylenes	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
Xylenes	<0.0015		0.0015	mg/L		05-OCT-12	R2448472
F1 (C6-C10)	<0.10		0.10	mg/L		05-OCT-12	R2448472
Surrogate: 4-Bromofluorobenzene (SS)	100.0		70-130	%		05-OCT-12	R2448472
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		10-OCT-12	
F3-PAH	<0.25		0.25	mg/L		10-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		10-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F3 (C16-C34)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F4 (C34-C50)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
Surrogate: 2-Bromobenzotrifluoride	96.0		65-135	%	29-SEP-12	29-SEP-12	R2446755
Miscellaneous Parameters							
Ammonia, Total (as N)	15.0	DLA	1.0	mg/L		03-OCT-12	R2449049
Biochemical Oxygen Demand	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448952
BOD Carbonaceous	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448951
Fecal Coliforms	9300		3	MPN/100mL		02-OCT-12	R2448486
Oil and Grease, Total	<2.0		2.0	mg/L	02-OCT-12	02-OCT-12	R2447533
Phenols (4AAP)	<0.0010		0.0010	mg/L	05-OCT-12	05-OCT-12	R2450272
Phosphorus (P)-Total	5.35	DLA	0.050	mg/L		04-OCT-12	R2449043
Total Organic Carbon	25.0		1.0	mg/L		03-OCT-12	R2449058
Total Suspended Solids	10.0		5.0	mg/L		01-OCT-12	R2447372
Polyaromatic Hydrocarbons (PAHs)							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216427-2 WHA-3							
Sampled By: CLIENT on 26-SEP-12 @ 10:20							
Matrix: SURFACE WATER							
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Acridine	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Chrysene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluoranthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluorene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Naphthalene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Phenanthrene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Quinoline	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acenaphthene d10	65.9		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acridine d9	84.2		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Chrysene d12	71.6		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Naphthalene d8	N. R.		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Phenanthrene d10	80.2		50-150	%	03-OCT-12	09-OCT-12	R2452323
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	166		20	mg/L		29-SEP-12	R2446360
Bicarbonate (HCO3)	203		24	mg/L		29-SEP-12	R2446360
Carbonate (CO3)	<12		12	mg/L		29-SEP-12	R2446360
Hydroxide (OH)	<6.8		6.8	mg/L		29-SEP-12	R2446360
Chloride by Ion Chromatography							
Chloride	82.4		0.50	mg/L		29-SEP-12	R2448095
Conductivity							
Conductivity	673		20	umhos/cm		29-SEP-12	R2446360
Hardness Calculated							
Hardness (as CaCO3)	99.2		0.30	mg/L		04-OCT-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		29-SEP-12	R2448095
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.098		0.071	mg/L		03-OCT-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	0.098		0.050	mg/L		29-SEP-12	R2448095
Sulfate by Ion Chromatography							
Sulfate	25.2		0.50	mg/L		29-SEP-12	R2448095
TDS calculated							
TDS (Calculated)	335		5.0	mg/L		04-OCT-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.229		0.020	mg/L	02-OCT-12	02-OCT-12	R2448891
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Arsenic (As)-Total	0.0011		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891

* 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
L1216427-2 WHA-3							
Sampled By: CLIENT on 26-SEP-12 @ 10:20							
Matrix: SURFACE WATER							
Total Metals by ICP-MS							
Barium (Ba)-Total	0.00436		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Boron (B)-Total	0.150		0.030	mg/L	02-OCT-12	02-OCT-12	R2448891
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	02-OCT-12	02-OCT-12	R2448891
Calcium (Ca)-Total	29.7		0.20	mg/L	02-OCT-12	02-OCT-12	R2448891
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Copper (Cu)-Total	0.0190		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Iron (Fe)-Total	0.46		0.10	mg/L	02-OCT-12	02-OCT-12	R2448891
Lead (Pb)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Lithium (Li)-Total	0.0027		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Magnesium (Mg)-Total	6.05		0.050	mg/L	02-OCT-12	02-OCT-12	R2448891
Manganese (Mn)-Total	0.0519		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Molybdenum (Mo)-Total	0.00133		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Nickel (Ni)-Total	0.0027		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Phosphorus (P)-Total	5.24		0.50	mg/L	02-OCT-12	02-OCT-12	R2448891
Potassium (K)-Total	18.2		0.10	mg/L	02-OCT-12	02-OCT-12	R2448891
Rubidium (Rb)-Total	0.0195		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Selenium (Se)-Total	<0.0050		0.0050	mg/L	02-OCT-12	02-OCT-12	R2448891
Silicon (Si)-Total	2.26		0.30	mg/L	02-OCT-12	02-OCT-12	R2448891
Silver (Ag)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Sodium (Na)-Total	73.0		0.050	mg/L	02-OCT-12	02-OCT-12	R2448891
Strontium (Sr)-Total	0.120		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	02-OCT-12	02-OCT-12	R2448891
Thorium (Th)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Tin (Sn)-Total	0.00061		0.00060	mg/L	02-OCT-12	02-OCT-12	R2448891
Titanium (Ti)-Total	0.0034		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
Tungsten (W)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Uranium (U)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R2448891
Vanadium (V)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R2448891
Zinc (Zn)-Total	0.025		0.020	mg/L	02-OCT-12	02-OCT-12	R2448891
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R2448891
pH							
pH	8.03		0.10	pH units		29-SEP-12	R2446360
L1216427-3 WHA-4							
Sampled By: CLIENT on 26-SEP-12 @ 10:40							
Matrix: SURFACE WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
Toluene	<0.0010		0.0010	mg/L		05-OCT-12	R2448472
Ethyl benzene	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
o-Xylene	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
m+p-Xylenes	<0.00050		0.00050	mg/L		05-OCT-12	R2448472
Xylenes	<0.0015		0.0015	mg/L		05-OCT-12	R2448472
F1 (C6-C10)	<0.10		0.10	mg/L		05-OCT-12	R2448472
Surrogate: 4-Bromofluorobenzene (SS)	109.0		70-130	%		05-OCT-12	R2448472
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
L1216427-3 WHA-4							
Sampled By: CLIENT on 26-SEP-12 @ 10:40							
Matrix: SURFACE WATER							
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		10-OCT-12	
F3-PAH	<0.25		0.25	mg/L		10-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		10-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F3 (C16-C34)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F4 (C34-C50)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
Surrogate: 2-Bromobenzotrifluoride	96.7		65-135	%	29-SEP-12	29-SEP-12	R2446755
Miscellaneous Parameters							
Ammonia, Total (as N)	0.025		0.010	mg/L		01-OCT-12	R2447410
Biochemical Oxygen Demand	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448952
BOD Carbonaceous	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448951
Fecal Coliforms	<3		3	MPN/100mL		02-OCT-12	R2448486
Oil and Grease, Total	<2.0		2.0	mg/L	02-OCT-12	02-OCT-12	R2447533
Phenols (4AAP)	<0.0010		0.0010	mg/L	05-OCT-12	05-OCT-12	R2450272
Phosphorus (P)-Total	0.961		0.010	mg/L		04-OCT-12	R2449043
Total Organic Carbon	13.2		1.0	mg/L		03-OCT-12	R2449058
Total Suspended Solids	6.0		5.0	mg/L		01-OCT-12	R2447372
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Acridine	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Chrysene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluoranthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluorene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Naphthalene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Phenanthrene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Quinoline	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acenaphthene d10	97.7		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acridine d9	97.9		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Chrysene d12	86.0		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Naphthalene d8	90.0		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Phenanthrene d10	96.1		50-150	%	03-OCT-12	09-OCT-12	R2452323
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	209		20	mg/L		29-SEP-12	R2446360
Bicarbonate (HCO3)	181		24	mg/L		29-SEP-12	R2446360
Carbonate (CO3)	37		12	mg/L		29-SEP-12	R2446360

* 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
L1216427-3 WHA-4							
Sampled By: CLIENT on 26-SEP-12 @ 10:40							
Matrix: SURFACE WATER							
Alkalinity							
Hydroxide (OH)	<6.8		6.8	mg/L		29-SEP-12	R2446360
Chloride by Ion Chromatography							
Chloride	96.0		0.50	mg/L		29-SEP-12	R2448095
Conductivity							
Conductivity	703		20	umhos/cm		29-SEP-12	R2446360
Hardness Calculated							
Hardness (as CaCO3)	170		0.30	mg/L		11-OCT-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		29-SEP-12	R2448095
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		03-OCT-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		29-SEP-12	R2448095
Sulfate by Ion Chromatography							
Sulfate	16.0		0.50	mg/L		29-SEP-12	R2448095
TDS calculated							
TDS (Calculated)	395		5.0	mg/L		11-OCT-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	<0.020		0.020	mg/L	02-OCT-12	10-OCT-12	R2453446
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Arsenic (As)-Total	0.0068		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Barium (Ba)-Total	0.0132		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Boron (B)-Total	0.091		0.030	mg/L	02-OCT-12	10-OCT-12	R2453446
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	02-OCT-12	10-OCT-12	R2453446
Calcium (Ca)-Total	53.2		0.20	mg/L	02-OCT-12	10-OCT-12	R2453446
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446
Cobalt (Co)-Total	0.00071		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Copper (Cu)-Total	0.0068		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446
Iron (Fe)-Total	<0.10		0.10	mg/L	02-OCT-12	10-OCT-12	R2453446
Lead (Pb)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Lithium (Li)-Total	<0.0020		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446
Magnesium (Mg)-Total	8.91		0.050	mg/L	02-OCT-12	10-OCT-12	R2453446
Manganese (Mn)-Total	0.0027		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Molybdenum (Mo)-Total	0.00144		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Nickel (Ni)-Total	0.0099		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446
Phosphorus (P)-Total	1.01		0.50	mg/L	02-OCT-12	10-OCT-12	R2453446
Potassium (K)-Total	17.7		0.10	mg/L	02-OCT-12	10-OCT-12	R2453446
Rubidium (Rb)-Total	0.0103		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Selenium (Se)-Total	<0.0050		0.0050	mg/L	02-OCT-12	10-OCT-12	R2453446
Silicon (Si)-Total	0.98		0.30	mg/L	02-OCT-12	10-OCT-12	R2453446
Silver (Ag)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Sodium (Na)-Total	77.7		0.050	mg/L	02-OCT-12	10-OCT-12	R2453446
Strontium (Sr)-Total	0.297		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	02-OCT-12	10-OCT-12	R2453446
Thorium (Th)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Tin (Sn)-Total	<0.00060		0.00060	mg/L	02-OCT-12	10-OCT-12	R2453446
Titanium (Ti)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Tungsten (W)-Total	<0.0020		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446

* 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
L1216427-3 WHA-4							
Sampled By: CLIENT on 26-SEP-12 @ 10:40							
Matrix: SURFACE WATER							
Total Metals by ICP-MS							
Uranium (U)-Total	0.00132		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Vanadium (V)-Total	<0.0020		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446
Zinc (Zn)-Total	<0.020		0.020	mg/L	02-OCT-12	10-OCT-12	R2453446
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
pH							
pH	9.17		0.10	pH units		29-SEP-12	R2446360

* 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

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-WP	Water	Alkalinity	APHA 2320B

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong 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.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA SW846 8260B REV 2 SEPT 1994

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-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

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
ETL-SOLIDS-CALC-WP	Water	TDS calculated	CALCULATION
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB# 1310-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.

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.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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-WS-WP	Water	F2-F4 PHC method	EPA 3510/8000

This is the determination of the Petroleum Hydrocarbon fractions in water (F2, F3 and F4). A water sample volume of 200 mL in a 250 mL glass amber bottle is shaken with 10 mL hexane for two hours on a wrist action shaker, and then sonicated for 5 minutes. After extraction, the solvent layer is drawn off and analyzed against C10, C16 and C34 standards on a gas chromatograph equipped with a flame ionization detector.

FC-MPN-WP	Water	Fecal Coliform	APHA 9221A-C

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.

IONBALANCE-OP05-WP	Water	Ion Balance Calculation No Reporting	APHA 1030E
MET-T-MS-WP	Water	Total Metals by ICP-MS	U.S. EPA 200.8-T

Total Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the examination of Water and Wastewater Method 3030E and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.

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-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

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 Phosphorous 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-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

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.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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:

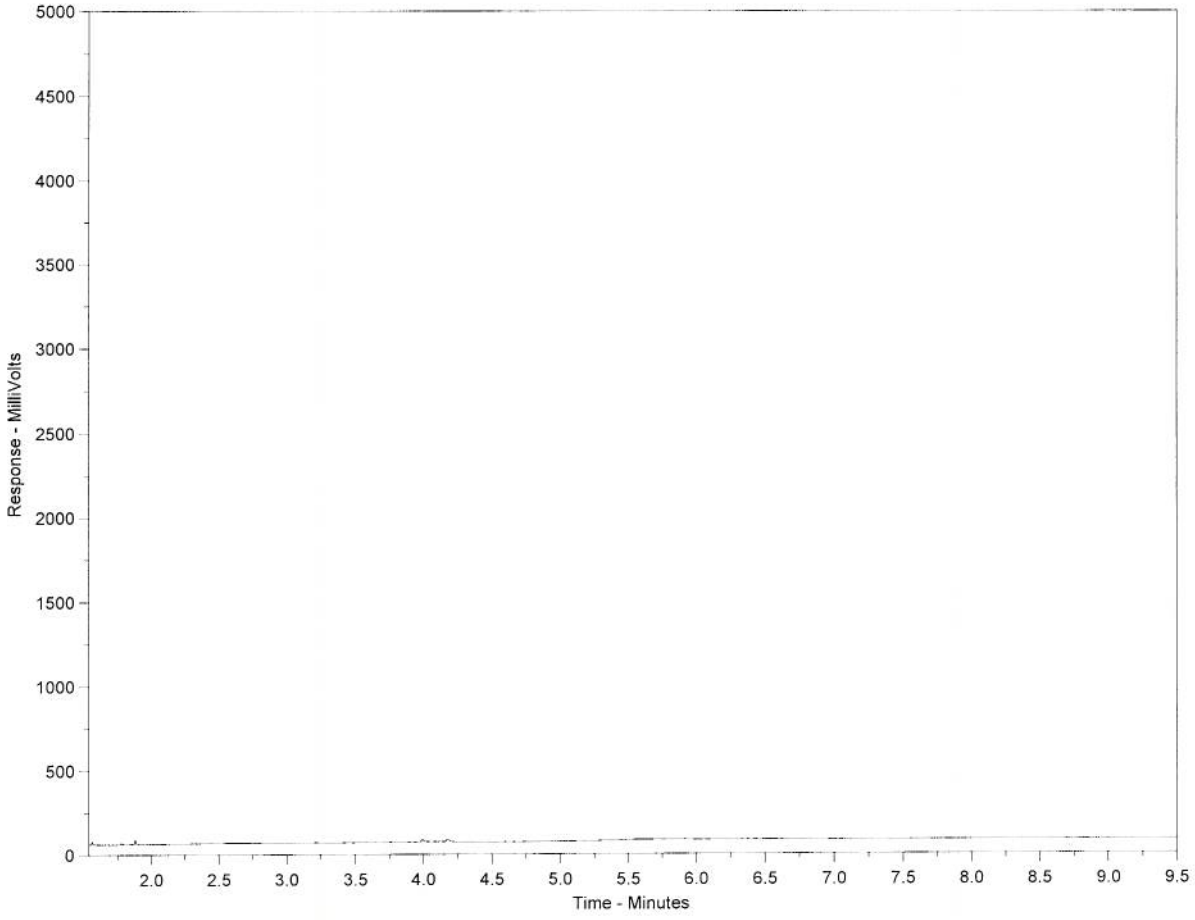
GLOSSARY OF REPORT TERMS

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.

Hydrocarbon Distribution Report

ALS Sample ID: L1216427-1
Client ID: WHA-2



<-nC10---------nC16-------------------------nC34-----------------nC50------------------------------>
<-------nC11----------------------nC30-->
<----Gasoline-------------> <-------------------Heavy Oils-->
|----------------Diesel----------------|

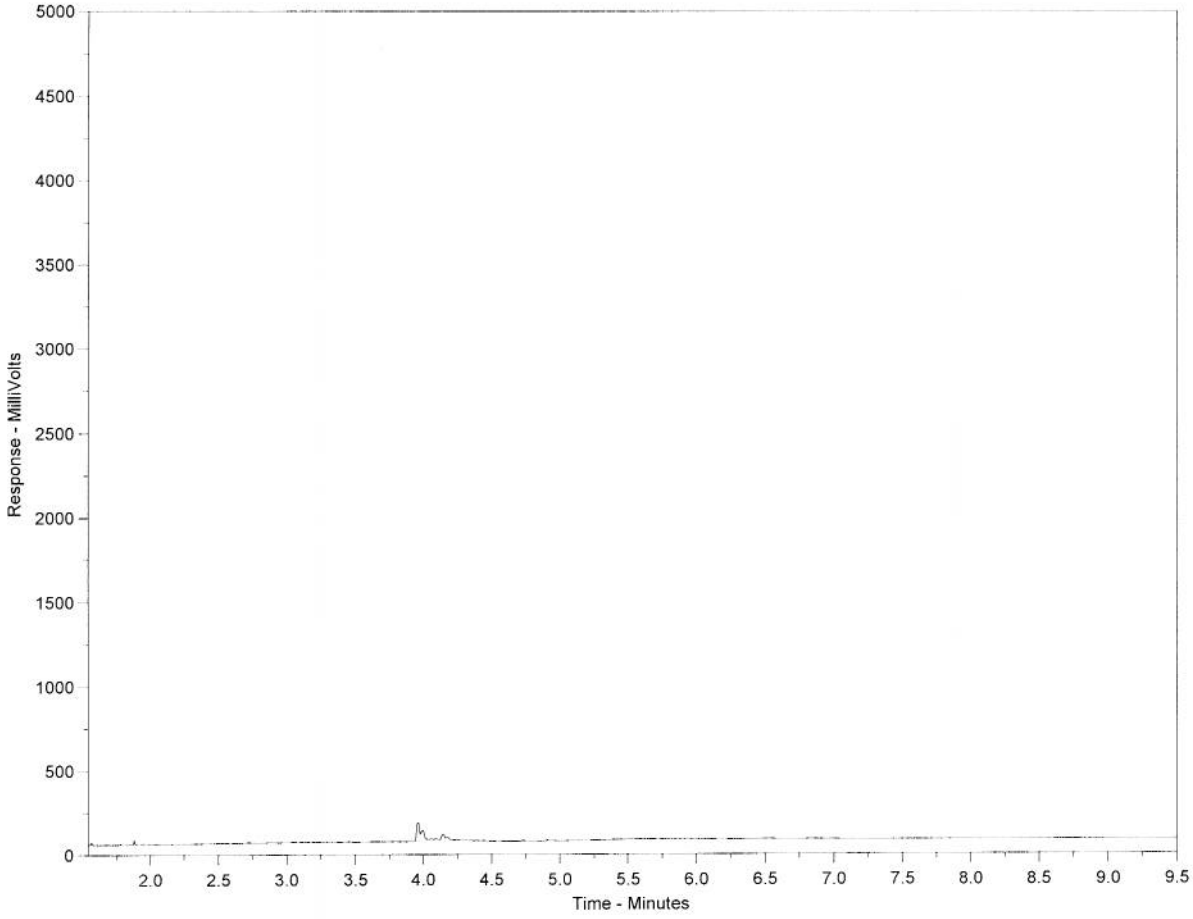
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

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 with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: L1216427-2
Client ID: WHA-3



<-nC10---------nC16-------------------------nC34------------------nC50-------------------------------->
<-------nC11----------------------nC30-->
<----Gasoline-------------> <------------------Heavy Oils-->
|---------------Diesel----------------|

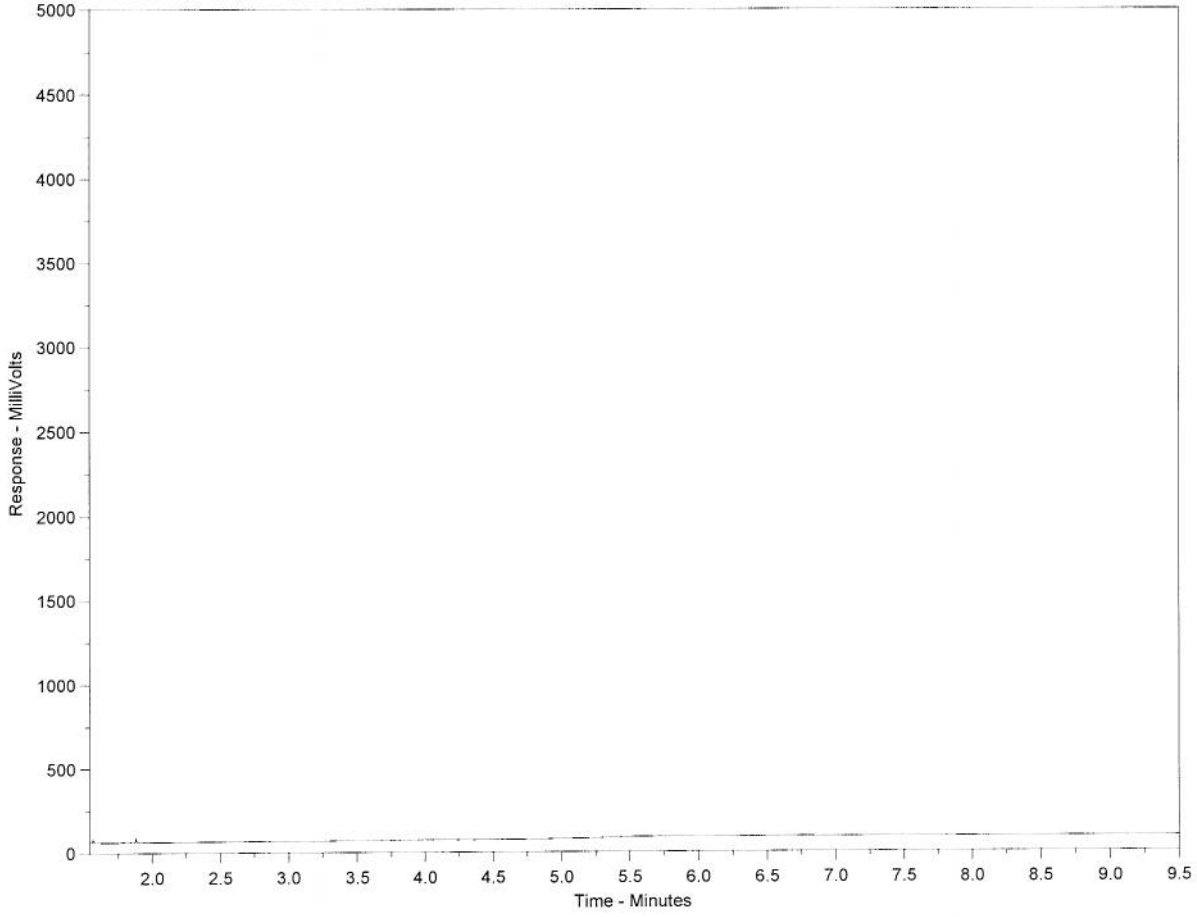
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

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 with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

Hydrocarbon Distribution Report

ALS Sample ID: L1216427-3
Client ID: WHA-4



<-nC10---------nC16-------------------------nC34-------------------nC50------------------------------>
<-------nC11----------------------nC30-->
<----Gasoline-------------> <-------------------Heavy Oils-->
|--------------Diesel----------------|

The Canada Wide Standard Hydrocarbon Distribution Report 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 as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

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 with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

L1216427-COFC

HAMLET OF WHALE COVE
POST OFFICE BOX 120
WHALE COVE, NUNAVUT, X0C 0J0
ephone: (867) 896-9961 ~ Fax: (867) 896-9109

Water Licence Sampling Field Log

Name of Sampler(s): Terri-Rose Teenar

Date of Sampling: September 26th, 2012

Time of Sampling: Mid-morning

Monitoring Station Number: WHA-2

GPS Coordinates: N 62°10' 176" W 92°35'665" (bermed pond at dump)

Weather Conditions: _____

Samples:

- [√] 1 L Routine
- [√] 500 mL BOD
- [√] 250 mL Metals + Pres
- [√] 250 mL Nutrients + Pres
- [√] ***125 mL Sterile Bacteria Bottle[1]***
- [√] 250 mL Amber Phenols + Pres
- [√] ***1 L Amber Oil & Grease + Pres[1]***
- [√] 100 mL Amber TOC + Pres
- [√] ***1 L Amber PAH + Pres[1]***
- [√] ***3 x 40 mL BTEX, F1 vials + Pres[1]***
- [√] ***2 x 250 mL Amber F2-F4 + Pres[1]***

Other:

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

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

Cloudy

Footnote 1) Do not rinse this bottle but rinse all others in the sampling pond

L1216427-COFC

HAMLET OF WHALE COVE
POST OFFICE BOX 120
WHALE COVE, NUNAVUT, X0C 0J0
:phone: (867) 896-9961 ~ Fax: (867) 896-9109

Water Licence Sampling Field Log

Name of Sampler(s): Terri-Rose Teenar

Date of Sampling: September 26th, 2012

Time of Sampling: Mid-morning

Monitoring Station Number: WHA-3

GPS Coordinates: N 62°10' 112" W 92°35'496" (lagoon on south side)

Weather Conditions: _____

Samples:

- [x] 1 L Routine
- [x] 500 mL BOD
- [x] 250 mL Metals + Pres
- [x] 250 mL Nutrients + Pres
- [x] ***125 mL Sterile Bacteria Bottle[1]***
- [x] 250 mL Amber Phenols + Pres
- [x] ***1 L Amber Oil & Grease + Pres[1]***
- [x] 100 mL Amber TOC + Pres
- [x] ***1 L Amber PAH + Pres[1]***
- [x] ***3 x 40 mL BTEX, F1 vials + Pres[1]***
- [x] ***2 x 250 mL Amber F2-F4 + Pres[1]***

Other:

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

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

Cloudy

Footnote 1) Do not rinse this bottle but rinse all others in the sampling pond

HAMLET OF WHALE COVE
POST OFFICE BOX 120
WHALE COVE, NUNAVUT, X0C 0J0
one: (867) 896-9961 ~ Fax: (867) 896-9109

Water Licence Sampling Field Log

Name of Sampler(s): Terri-Rose Teenar

Date of Sampling: September 26th, 2012

Time of Sampling: Mid-morning

Monitoring Station Number: WHA-4

GPS Coordinates: N 62°10' 552" W 92°35'712" (below lagoon in water course)

Weather Conditions: _____

Samples:

- [x] 1 L Routine
- [x] 500 mL BOD
- [x] 250 mL Metals + Pres
- [x] 250 mL Nutrients + Pres
- [x] ***125 mL Sterile Bacteria Bottle[1]***
- [x] 250 mL Amber Phenols + Pres
- [x] ***1 L Amber Oil & Grease + Pres[1]***
- [x] 100 mL Amber TOC + Pres
- [x] ***1 L Amber PAH + Pres[1]***
- [x] ***3 x 40 mL BTEX, F1 vials + Pres[1]***
- [x] ***2 x 250 mL Amber F2-F4 + Pres[1]***

Other:

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

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

Cloudy

ALS Environmental

Cha

L1216427-COFC

COC # L1216427

Page ____ of ____

Report To		Report F		rvice Requested (Rush for routine analysis subject to availability)
Company:	Hamlet of Whale Cove	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Brock Junkin	☑ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	P.O. Box 120, Whale Cove, NU X0C 0J0	Email 1:	sao@whalecove.ca	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2:	mlusty@gov.nu.ca	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	(867) 896-9961 Fax: (867) 896-9109	Email 3:		**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☑ Yes ☐ No	Job #:	Whale Cove Monitoring Program	
Company:		PO / AFE:		
Contact:		LSD:		
Address:				
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact:	Craig Riddell	Sampler:

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Carbonaceous BOD	Biochemical Oxygen Demand	Total Organic Carbon	Ammonia by colour	Oil and Grease, Total	Phosphorus, Total	Phenol [4AAP]	Routine Soluble + Metal Scan	Total Suispended Solids	Fecal Coliforms	BTEX plus F1-F4	Polyaromatic Hydrocarbons	Number of Containers
	WHA-2	Sept 26/12	10:00	Surface Water													
	WHA-3	Sept 26/12	10:20	Surface Water													
	WHA-4	Sept 26/12	10:40	Surface Water													
	~~WHA-7~~ not included																
	~~WHA-8~~ "																

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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 provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			CL	Septa8/12	11:15am	4.8 °C				

GENF 20.00 Front