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 NWB3REP 0409 Hamlet of Repulse Bay 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 REPULSE BAY, 2012

YEAR BEING REPORTED: 2012

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License # NWB3REP 0409 issued to the Hamlet of Repulse Bay.

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	2,898,207.90	Same
February 2012	2,625,396.20	Same
March 2012	2,984,348.70	Same
April 2012	2,957,018.10	Same
May 2012	2,984,005.30	Same
June 2012	2,840,683.20	Same
July 2012	3,018,090.20	Same
August 2012	3,202,338.40	Same
September 2012	3,110,259.40	Same
October 2012	3,113,380.90	Same
November 2012	3,084,085.00	Same
December 2012	2,960,944.10	Same
ANNUAL TOTAL	35,778,757.40	35,778,757.40

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

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

The existing Water Truck Fill Station (WTFS) is being upgraded. EXP has been hired to provide design of the new pump house. EXP will submit design by the summer of 2013 with construction drawings to Tender the project.

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

Not recorded from the sewage lagoon.
Spills:
Tank farm: P-50: 161L, dated 4/3/2012, # 2012114
House 23: Heating fuel; 20L, dated 6/6/2012, #2012233

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 plan was in 2012 and no anticipation 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;

- Arktis solution Inc. completed a feasibility study on waste management across Nunavut and recommended new guidelines. CGS is planning to implement these guidelines in the future waste management facilities including Repulse Bay.
- CGS has retained William Engineering ltd conducting bathymetric surveys on the existing water source and also 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; and

-Monitoring wells are recommended to be installed up-gradient and down-gradient of the land farm to monitor ground water quality.
-Toxicity test of the leachate is recommended to be conducted.

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

The O&M manual of the Water Truck Fills Station (WTFS) will be upgraded once construction is completed in 2013.

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

- The Licensee will continue extended sampling and testing program in 2013.
- The licensee will follow the instructions for amendment Water License for Land farm and other facilities of this License.

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

The Licensee is working closely with CGS to satisfy the requirements of the Water License and the deficiencies mentioned by the AANDC inspector, dated August 8, 2011.

- The Lab Test Results for 2012


L1171564_COA.PDF


L1187839_COA.PDF

Hamlet of Repulse Bay
ATTN: KEVIN TEGUMIAR
PO Box 10
Repulse Bay NU X0C 0H0

Date Received: 03-JUL-12
Report Date: 26-JUL-12 14:11 (MT)
Version: FINAL

Client Phone: 867-462-9952

Certificate of Analysis

Lab Work Order #: L1171564
Project P.O. #: NOT SUBMITTED
Job Reference: REPULSE BAY 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
L1171564-1 REP-2							
Sampled By: KEVIN TEGUMIAR on 29-JUN-12 @ 11:40							
Matrix: WASTE WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.014		0.010	mg/L		11-JUL-12	R2396763
Biochemical Oxygen Demand	<6.0		6.0	mg/L	04-JUL-12	09-JUL-12	R2394790
BOD Carbonaceous	<6.0		6.0	mg/L	04-JUL-12	09-JUL-12	R2394789
Fecal Coliforms	<3		3	MPN/100mL		06-JUL-12	R2394237
Oil and Grease, Total	<2.0		2.0	mg/L	06-JUL-12	06-JUL-12	R2394615
Phenols (4AAP)	<0.0010		0.0010	mg/L	10-JUL-12	10-JUL-12	R2395644
Phosphorus (P)-Total	<0.010		0.010	mg/L		09-JUL-12	R2394869
Total Organic Carbon	5.5		1.0	mg/L		26-JUL-12	R2405143
Total Suspended Solids	8.0		5.0	mg/L		14-JUL-12	R2399078
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	85		20	mg/L		03-JUL-12	R2391974
Bicarbonate (HCO3)	103		24	mg/L		03-JUL-12	R2391974
Carbonate (CO3)	<12		12	mg/L		03-JUL-12	R2391974
Hydroxide (OH)	<6.8		6.8	mg/L		03-JUL-12	R2391974
Chloride by Ion Chromatography							
Chloride	12.2		0.50	mg/L		04-JUL-12	R2393169
Conductivity							
Conductivity	224		20	umhos/cm		03-JUL-12	R2391974
Hardness Calculated							
Hardness (as CaCO3)	93.6		0.30	mg/L		06-JUL-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		04-JUL-12	R2393169
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		03-JUL-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		04-JUL-12	R2393169
Sulfate by Ion Chromatography							
Sulfate	16.5		0.50	mg/L		04-JUL-12	R2393169
TDS calculated							
TDS (Calculated)	125		5.0	mg/L		06-JUL-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	<0.020		0.020	mg/L	05-JUL-12	05-JUL-12	R2393489
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Arsenic (As)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Barium (Ba)-Total	0.00909		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Boron (B)-Total	<0.030		0.030	mg/L	05-JUL-12	05-JUL-12	R2393489
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	05-JUL-12	05-JUL-12	R2393489
Calcium (Ca)-Total	29.1		0.20	mg/L	05-JUL-12	05-JUL-12	R2393489
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Copper (Cu)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Iron (Fe)-Total	<0.10		0.10	mg/L	05-JUL-12	05-JUL-12	R2393489
Lead (Pb)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Lithium (Li)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Magnesium (Mg)-Total	5.12		0.050	mg/L	05-JUL-12	05-JUL-12	R2393489
Manganese (Mn)-Total	0.0034		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Molybdenum (Mo)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489

* 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
L1171564-1 REP-2							
Sampled By: KEVIN TEGUMIAR on 29-JUN-12 @ 11:40							
Matrix: WASTE WATER							
Total Metals by ICP-MS							
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Phosphorus (P)-Total	<0.50		0.50	mg/L	05-JUL-12	05-JUL-12	R2393489
Potassium (K)-Total	1.53		0.10	mg/L	05-JUL-12	05-JUL-12	R2393489
Rubidium (Rb)-Total	0.00148		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Selenium (Se)-Total	<0.0050		0.0050	mg/L	05-JUL-12	05-JUL-12	R2393489
Silicon (Si)-Total	<0.30		0.30	mg/L	05-JUL-12	05-JUL-12	R2393489
Silver (Ag)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Sodium (Na)-Total	9.82		0.050	mg/L	05-JUL-12	05-JUL-12	R2393489
Strontium (Sr)-Total	0.0298		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	05-JUL-12	05-JUL-12	R2393489
Thorium (Th)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Tin (Sn)-Total	<0.00060		0.00060	mg/L	05-JUL-12	05-JUL-12	R2393489
Titanium (Ti)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Tungsten (W)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Uranium (U)-Total	0.00134		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Vanadium (V)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Zinc (Zn)-Total	<0.020		0.020	mg/L	05-JUL-12	05-JUL-12	R2393489
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
pH							
pH	7.90		0.10	pH units		03-JUL-12	R2391974
L1171564-2 REP-4							
Sampled By: KEVIN TEGUMIAR on 29-JUN-12 @ 11:40							
Matrix: WASTE WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	12.5	DLA	1.0	mg/L		12-JUL-12	R2397587
Biochemical Oxygen Demand	<6.0		6.0	mg/L	04-JUL-12	09-JUL-12	R2394790
BOD Carbonaceous	<6.0		6.0	mg/L	04-JUL-12	09-JUL-12	R2394789
Fecal Coliforms	430		3	MPN/100mL		06-JUL-12	R2394237
Oil and Grease, Total	<2.0		2.0	mg/L	06-JUL-12	06-JUL-12	R2394615
Phenols (4AAP)	0.0010		0.0010	mg/L	10-JUL-12	10-JUL-12	R2395644
Phosphorus (P)-Total	1.08		0.010	mg/L		09-JUL-12	R2394869
Total Organic Carbon	13.1		1.0	mg/L		26-JUL-12	R2405143
Total Suspended Solids	11.0		5.0	mg/L		14-JUL-12	R2399078
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	94		20	mg/L		03-JUL-12	R2391974
Bicarbonate (HCO3)	115		24	mg/L		03-JUL-12	R2391974
Carbonate (CO3)	<12		12	mg/L		03-JUL-12	R2391974
Hydroxide (OH)	<6.8		6.8	mg/L		03-JUL-12	R2391974
Chloride by Ion Chromatography							
Chloride	13.7		0.50	mg/L		04-JUL-12	R2393169
Conductivity							
Conductivity	240		20	umhos/cm		03-JUL-12	R2391974
Hardness Calculated							
Hardness (as CaCO3)	77.3		0.30	mg/L		24-JUL-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	0.116		0.050	mg/L		04-JUL-12	R2393169
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.116		0.071	mg/L		03-JUL-12	
Nitrite as N by Ion Chromatography							

* 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
L1171564-2 REP-4							
Sampled By: KEVIN TEGUMIAR on 29-JUN-12 @ 11:40							
Matrix: WASTE WATER							
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		04-JUL-12	R2393169
Sulfate by Ion Chromatography							
Sulfate	7.96		0.50	mg/L		04-JUL-12	R2393169
TDS calculated							
TDS (Calculated)	124		5.0	mg/L		24-JUL-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.031		0.020	mg/L	05-JUL-12	05-JUL-12	R2393489
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Arsenic (As)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Barium (Ba)-Total	0.00403		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Boron (B)-Total	<0.030		0.030	mg/L	05-JUL-12	05-JUL-12	R2393489
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	05-JUL-12	05-JUL-12	R2393489
Calcium (Ca)-Total	23.2		0.20	mg/L	05-JUL-12	05-JUL-12	R2393489
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Copper (Cu)-Total	0.0059		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Iron (Fe)-Total	0.38		0.10	mg/L	05-JUL-12	05-JUL-12	R2393489
Lead (Pb)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Lithium (Li)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Magnesium (Mg)-Total	4.71		0.050	mg/L	05-JUL-12	05-JUL-12	R2393489
Manganese (Mn)-Total	0.0229		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Molybdenum (Mo)-Total	0.00057		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Phosphorus (P)-Total	0.92		0.50	mg/L	05-JUL-12	05-JUL-12	R2393489
Potassium (K)-Total	4.56		0.10	mg/L	05-JUL-12	05-JUL-12	R2393489
Rubidium (Rb)-Total	0.00489		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Selenium (Se)-Total	<0.0050		0.0050	mg/L	05-JUL-12	05-JUL-12	R2393489
Silicon (Si)-Total	0.85		0.30	mg/L	05-JUL-12	05-JUL-12	R2393489
Silver (Ag)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Sodium (Na)-Total	13.1		0.050	mg/L	05-JUL-12	05-JUL-12	R2393489
Strontium (Sr)-Total	0.0340		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	05-JUL-12	05-JUL-12	R2393489
Thorium (Th)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Tin (Sn)-Total	<0.00060		0.00060	mg/L	05-JUL-12	05-JUL-12	R2393489
Titanium (Ti)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Tungsten (W)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Uranium (U)-Total	0.00072		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Vanadium (V)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Zinc (Zn)-Total	<0.020		0.020	mg/L	05-JUL-12	05-JUL-12	R2393489
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
pH							
pH	7.76		0.10	pH units		03-JUL-12	R2391974
L1171564-3 REP-6							
Sampled By: KEVIN TEGUMIAR on 29-JUN-12 @ 11:40							
Matrix: WASTE WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							

* 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
L1171564-3 REP-6							
Sampled By: KEVIN TEGUMIAR on 29-JUN-12 @ 11:40							
Matrix: WASTE WATER							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		11-JUL-12	R2396218
Toluene	<0.0010		0.0010	mg/L		11-JUL-12	R2396218
Ethyl benzene	<0.00050		0.00050	mg/L		11-JUL-12	R2396218
o-Xylene	<0.00050		0.00050	mg/L		11-JUL-12	R2396218
m+p-Xylenes	<0.00050		0.00050	mg/L		11-JUL-12	R2396218
Xylenes	<0.0015		0.0015	mg/L		11-JUL-12	R2396218
F1 (C6-C10)	<0.10		0.10	mg/L		11-JUL-12	R2396218
Surrogate: 4-Bromofluorobenzene (SS)	80.5		70-130	%		11-JUL-12	R2396218
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		13-JUL-12	
F2-Naphth	<0.25		0.25	mg/L		13-JUL-12	
F3-PAH	<0.25		0.25	mg/L		13-JUL-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		13-JUL-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	05-JUL-12	05-JUL-12	R2393657
F3 (C16-C34)	<0.25		0.25	mg/L	05-JUL-12	05-JUL-12	R2393657
F4 (C34-C50)	<0.25		0.25	mg/L	05-JUL-12	05-JUL-12	R2393657
Surrogate: 2-Bromobenzotrifluoride	87.6		65-135	%	05-JUL-12	05-JUL-12	R2393657
Miscellaneous Parameters							
Ammonia, Total (as N)	0.024		0.010	mg/L		11-JUL-12	R2396763
Biochemical Oxygen Demand	<6.0		6.0	mg/L	04-JUL-12	09-JUL-12	R2394790
BOD Carbonaceous	<6.0		6.0	mg/L	04-JUL-12	09-JUL-12	R2394789
Fecal Coliforms	<3		3	MPN/100mL		06-JUL-12	R2394237
Oil and Grease, Total	<2.0		2.0	mg/L	06-JUL-12	06-JUL-12	R2394615
Phenols (4AAP)	<0.0010		0.0010	mg/L	10-JUL-12	10-JUL-12	R2395644
Phosphorus (P)-Total	0.033		0.010	mg/L		09-JUL-12	R2394869
Total Organic Carbon	19.8		1.0	mg/L		26-JUL-12	R2405143
Total Suspended Solids	<5.0		5.0	mg/L		14-JUL-12	R2399078
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	06-JUL-12	11-JUL-12	R2398036
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	06-JUL-12	11-JUL-12	R2398036
Acenaphthene	<0.000020		0.000020	mg/L	06-JUL-12	11-JUL-12	R2398036
Acenaphthylene	<0.000020		0.000020	mg/L	06-JUL-12	11-JUL-12	R2398036
Anthracene	<0.000010		0.000010	mg/L	06-JUL-12	11-JUL-12	R2398036
Acridine	<0.000020		0.000020	mg/L	06-JUL-12	11-JUL-12	R2398036
Benzo(a)anthracene	<0.000010		0.000010	mg/L	06-JUL-12	11-JUL-12	R2398036
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	06-JUL-12	11-JUL-12	R2398036
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	06-JUL-12	11-JUL-12	R2398036
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	06-JUL-12	11-JUL-12	R2398036
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	06-JUL-12	11-JUL-12	R2398036
Chrysene	<0.000020		0.000020	mg/L	06-JUL-12	11-JUL-12	R2398036
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	06-JUL-12	11-JUL-12	R2398036
Fluoranthene	<0.000020		0.000020	mg/L	06-JUL-12	11-JUL-12	R2398036
Fluorene	<0.000020		0.000020	mg/L	06-JUL-12	11-JUL-12	R2398036
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	06-JUL-12	11-JUL-12	R2398036
Naphthalene	<0.000050		0.000050	mg/L	06-JUL-12	11-JUL-12	R2398036
Phenanthrene	<0.000050		0.000050	mg/L	06-JUL-12	11-JUL-12	R2398036
Pyrene	<0.000010		0.000010	mg/L	06-JUL-12	11-JUL-12	R2398036
Quinoline	<0.000030	DLM	0.000030	mg/L	06-JUL-12	11-JUL-12	R2398036
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	06-JUL-12	11-JUL-12	R2398036
Surrogate: Acenaphthene d10	60.5		50-150	%	06-JUL-12	11-JUL-12	R2398036

* 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
L1171564-3 REP-6							
Sampled By: KEVIN TEGUMIAR on 29-JUN-12 @ 11:40							
Matrix: WASTE WATER							
Polyaromatic Hydrocarbons (PAHs)							
Surrogate: Acridine d9	68.0		50-150	%	06-JUL-12	11-JUL-12	R2398036
Surrogate: Chrysene d12	80.8		50-150	%	06-JUL-12	11-JUL-12	R2398036
Surrogate: Naphthalene d8	50.4		50-150	%	06-JUL-12	11-JUL-12	R2398036
Surrogate: Phenanthrene d10	64.4		50-150	%	06-JUL-12	11-JUL-12	R2398036
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	130		20	mg/L		03-JUL-12	R2391974
Bicarbonate (HCO3)	138		24	mg/L		03-JUL-12	R2391974
Carbonate (CO3)	<12		12	mg/L		03-JUL-12	R2391974
Hydroxide (OH)	<6.8		6.8	mg/L		03-JUL-12	R2391974
Chloride by Ion Chromatography							
Chloride	10.2		0.50	mg/L		04-JUL-12	R2393169
Conductivity							
Conductivity	289		20	umhos/cm		03-JUL-12	R2391974
Hardness Calculated							
Hardness (as CaCO3)	168		0.30	mg/L		06-JUL-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		04-JUL-12	R2393169
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		03-JUL-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		04-JUL-12	R2393169
Sulfate by Ion Chromatography							
Sulfate	26.7		0.50	mg/L		04-JUL-12	R2393169
TDS calculated							
TDS (Calculated)	183		5.0	mg/L		06-JUL-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.046		0.020	mg/L	05-JUL-12	05-JUL-12	R2393489
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Arsenic (As)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Barium (Ba)-Total	0.0123		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Boron (B)-Total	<0.030		0.030	mg/L	05-JUL-12	05-JUL-12	R2393489
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	05-JUL-12	05-JUL-12	R2393489
Calcium (Ca)-Total	48.9		0.20	mg/L	05-JUL-12	05-JUL-12	R2393489
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Copper (Cu)-Total	0.0042		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Iron (Fe)-Total	<0.10		0.10	mg/L	05-JUL-12	05-JUL-12	R2393489
Lead (Pb)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Lithium (Li)-Total	0.0059		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Magnesium (Mg)-Total	11.1		0.050	mg/L	05-JUL-12	05-JUL-12	R2393489
Manganese (Mn)-Total	0.0011		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Molybdenum (Mo)-Total	0.00125		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Phosphorus (P)-Total	<0.50		0.50	mg/L	05-JUL-12	05-JUL-12	R2393489
Potassium (K)-Total	2.78		0.10	mg/L	05-JUL-12	05-JUL-12	R2393489
Rubidium (Rb)-Total	0.00209		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Selenium (Se)-Total	<0.0050		0.0050	mg/L	05-JUL-12	05-JUL-12	R2393489
Silicon (Si)-Total	0.70		0.30	mg/L	05-JUL-12	05-JUL-12	R2393489

* 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
L1171564-3 REP-6							
Sampled By: KEVIN TEGUMIAR on 29-JUN-12 @ 11:40							
Matrix: WASTE WATER							
Total Metals by ICP-MS							
Silver (Ag)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Sodium (Na)-Total	4.96		0.050	mg/L	05-JUL-12	05-JUL-12	R2393489
Strontium (Sr)-Total	0.0401		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	05-JUL-12	05-JUL-12	R2393489
Thorium (Th)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Tin (Sn)-Total	<0.00060		0.00060	mg/L	05-JUL-12	05-JUL-12	R2393489
Titanium (Ti)-Total	0.0016		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
Tungsten (W)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Uranium (U)-Total	0.00439		0.00050	mg/L	05-JUL-12	05-JUL-12	R2393489
Vanadium (V)-Total	<0.0020		0.0020	mg/L	05-JUL-12	05-JUL-12	R2393489
Zinc (Zn)-Total	<0.020		0.020	mg/L	05-JUL-12	05-JUL-12	R2393489
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	05-JUL-12	05-JUL-12	R2393489
pH							
pH	8.72		0.10	pH units		03-JUL-12	R2391974

* 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:

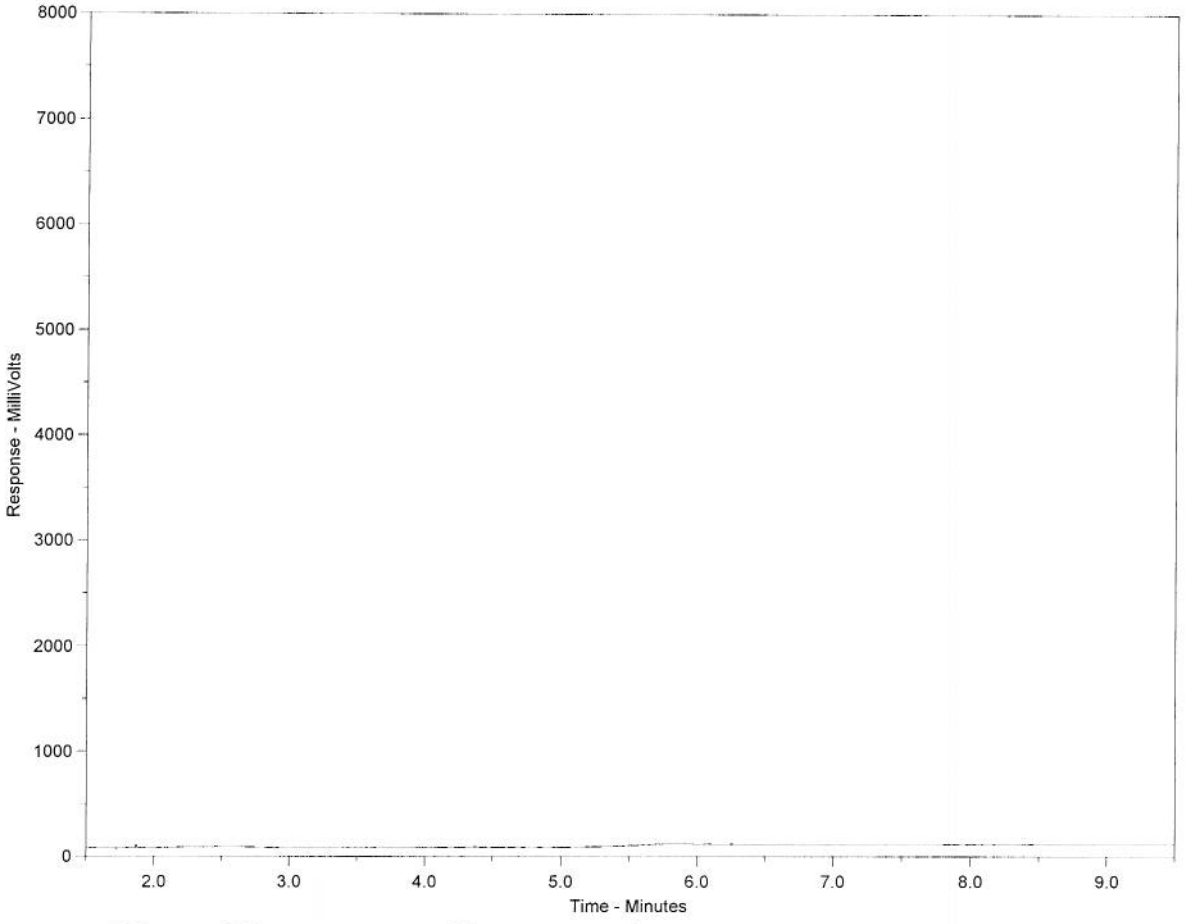
GLOSSARY OF REPORT TERMS

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: L1171564-3
Client ID: REP-6



<-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
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

L1171564

COC # _____

Page 1 of 1

Report To		**Report Format / Distribution**		**Service Requested** (Rush for routine analysis subject to availability)	
Company:	Hamlet of Repulse Bay	☑ Standard ☐ Other		◉ Regular (St	
Contact:	Kevin Tagumiar	☑ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-	
Address:	P.O. Box 10, Repulse Bay, NU X0C 0H0	Email 1: mmorepulse@qiniq.com		○ Emergency	
		Email 2: saorepulse@qiniq.com		○ Same Day	
Phone:	(867) 462-9952 Fax: (867) 462-4411	Email 3: mlusty@gov.nu.ca			
Invoice To	Same as Report ? ☑ Yes ☐ No	**Client / Project Information**			
Hardcopy of Invoice with Report?	☑ Yes ☐ No	Job #: Repulse Bay Monitoring Program			
Company:		PO / AFE:			
Contact:		LSD:			
Address:					
Phone:	Fax:	Quote #:			
Lab Work Order # (lab use only)		ALS Contact: Craig Riddell	Sampler: Kevin Tagumiar		

L1171564-COFC

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
	REP-2	29/06/12	11:40am	Waste Water	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			8
	REP-4	29/06/12	10:50am	Waste Water	✓	✓	✓	✓	✓	~	✓	✓	✓	✓			8
	REP-6	29/06/12	1:15pm	Waste Water	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14
	[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
	29/06/12	1:50pm		03-JUL-12	13:10	12.5 °C				

GENF 20.00 Front

Hamlet of Repulse Bay
ATTN: KEVIN TEGUMIAR
PO Box 10
Repulse Bay NU X0C 0H0

Date Received: 01-AUG-12
Report Date: 15-AUG-12 15:27 (MT)
Version: FINAL

Client Phone: 867-462-9952

Certificate of Analysis

Lab Work Order #: **L1187839**
Project P.O. #: NOT SUBMITTED
Job Reference: REPULSE BAY 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
L1187839-1 REP-2							
Sampled By: KEVIN TEGUMIAL on 30-JUL-12 @ 14:04							
Matrix: WASTEWATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.043	DLA	0.010	mg/L		13-AUG-12	R2416043
Biochemical Oxygen Demand	<6.0		6.0	mg/L	02-AUG-12	07-AUG-12	R2411820
BOD Carbonaceous	<6.0		6.0	mg/L	02-AUG-12	07-AUG-12	R2411778
Fecal Coliforms	4		3	MPN/100mL		05-AUG-12	R2411522
Oil and Grease, Total	<2.0		2.0	mg/L	07-AUG-12	07-AUG-12	R2412798
Phenols (4AAP)	<0.0010		0.0010	mg/L	09-AUG-12	09-AUG-12	R2415333
Phosphorus (P)-Total	<0.010		0.010	mg/L		13-AUG-12	R2417082
Total Organic Carbon	7.4		1.0	mg/L		14-AUG-12	R2416921
Total Suspended Solids	5.0		5.0	mg/L		02-AUG-12	R2410956
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	165		20	mg/L		02-AUG-12	R2410487
Bicarbonate (HCO3)	202		24	mg/L		02-AUG-12	R2410487
Carbonate (CO3)	<12		12	mg/L		02-AUG-12	R2410487
Hydroxide (OH)	<6.8		6.8	mg/L		02-AUG-12	R2410487
Chloride by Ion Chromatography							
Chloride	29.7		0.50	mg/L		03-AUG-12	R2412129
Conductivity							
Conductivity	434		20	umhos/cm		02-AUG-12	R2410487
Hardness Calculated							
Hardness (as CaCO3)	183		0.30	mg/L		07-AUG-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	0.100		0.050	mg/L		03-AUG-12	R2412129
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.100		0.071	mg/L		14-AUG-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		03-AUG-12	R2412129
Sulfate by Ion Chromatography							
Sulfate	17.0		0.50	mg/L		03-AUG-12	R2412129
TDS calculated							
TDS (Calculated)	238		5.0	mg/L		07-AUG-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.027		0.020	mg/L	03-AUG-12	03-AUG-12	R2411716
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Arsenic (As)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Barium (Ba)-Total	0.0162		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Boron (B)-Total	0.085		0.030	mg/L	03-AUG-12	03-AUG-12	R2411716
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	03-AUG-12	03-AUG-12	R2411716
Calcium (Ca)-Total	56.0		0.20	mg/L	03-AUG-12	03-AUG-12	R2411716
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Copper (Cu)-Total	0.0025		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Iron (Fe)-Total	<0.10		0.10	mg/L	03-AUG-12	03-AUG-12	R2411716
Lead (Pb)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Lithium (Li)-Total	0.0049		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Magnesium (Mg)-Total	10.6		0.050	mg/L	03-AUG-12	03-AUG-12	R2411716
Manganese (Mn)-Total	0.0053		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Molybdenum (Mo)-Total	0.00064		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716

* 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
L1187839-1 REP-2							
Sampled By: KEVIN TEGUMIAL on 30-JUL-12 @ 14:04							
Matrix: WASTEWATER							
Total Metals by ICP-MS							
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Phosphorus (P)-Total	<0.50		0.50	mg/L	03-AUG-12	03-AUG-12	R2411716
Potassium (K)-Total	2.38		0.10	mg/L	03-AUG-12	03-AUG-12	R2411716
Rubidium (Rb)-Total	0.00216		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Selenium (Se)-Total	<0.0050		0.0050	mg/L	03-AUG-12	03-AUG-12	R2411716
Silicon (Si)-Total	0.79		0.30	mg/L	03-AUG-12	03-AUG-12	R2411716
Silver (Ag)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Sodium (Na)-Total	22.9		0.050	mg/L	03-AUG-12	03-AUG-12	R2411716
Strontium (Sr)-Total	0.0597		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	03-AUG-12	03-AUG-12	R2411716
Thorium (Th)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Tin (Sn)-Total	<0.00060		0.00060	mg/L	03-AUG-12	03-AUG-12	R2411716
Titanium (Ti)-Total	0.0019		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Tungsten (W)-Total	<0.0020		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Uranium (U)-Total	0.00557		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Vanadium (V)-Total	<0.0020		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Zinc (Zn)-Total	<0.020		0.020	mg/L	03-AUG-12	03-AUG-12	R2411716
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
pH							
pH	8.23		0.10	pH units		02-AUG-12	R2410487
L1187839-2 REP-4							
Sampled By: KEVIN TEGUMIAL on 30-JUL-12 @ 14:46							
Matrix: WASTEWATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.80	DLA	0.10	mg/L		13-AUG-12	R2416043
Biochemical Oxygen Demand	19.9		6.0	mg/L	02-AUG-12	07-AUG-12	R2411820
BOD Carbonaceous	10.8		6.0	mg/L	02-AUG-12	07-AUG-12	R2411778
Fecal Coliforms	<3		3	MPN/100mL		05-AUG-12	R2411522
Oil and Grease, Total	<2.0		2.0	mg/L	07-AUG-12	07-AUG-12	R2412798
Phenols (4AAP)	<0.0010		0.0010	mg/L	09-AUG-12	09-AUG-12	R2415333
Phosphorus (P)-Total	0.742		0.010	mg/L		13-AUG-12	R2417082
Total Organic Carbon	17.8		1.0	mg/L		14-AUG-12	R2416921
Total Suspended Solids	20.0		5.0	mg/L		02-AUG-12	R2410956
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	132		20	mg/L		02-AUG-12	R2410487
Bicarbonate (HCO3)	128		24	mg/L		02-AUG-12	R2410487
Carbonate (CO3)	16		12	mg/L		02-AUG-12	R2410487
Hydroxide (OH)	<6.8		6.8	mg/L		02-AUG-12	R2410487
Chloride by Ion Chromatography							
Chloride	20.9		0.50	mg/L		03-AUG-12	R2412129
Conductivity							
Conductivity	320		20	umhos/cm		02-AUG-12	R2410487
Hardness Calculated							
Hardness (as CaCO3)	140		0.30	mg/L		07-AUG-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	0.599		0.050	mg/L		03-AUG-12	R2412129
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.710		0.071	mg/L		14-AUG-12	
Nitrite as N by Ion Chromatography							

* 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
L1187839-2 REP-4							
Sampled By: KEVIN TEGUMIAL on 30-JUL-12 @ 14:46							
Matrix: WASTEWATER							
Nitrite as N by Ion Chromatography							
Nitrite-N	0.111		0.050	mg/L		03-AUG-12	R2412129
Sulfate by Ion Chromatography							
Sulfate	16.6		0.50	mg/L		03-AUG-12	R2412129
TDS calculated							
TDS (Calculated)	194		5.0	mg/L		07-AUG-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.049		0.020	mg/L	03-AUG-12	03-AUG-12	R2411716
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Arsenic (As)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Barium (Ba)-Total	0.00628		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Boron (B)-Total	0.126		0.030	mg/L	03-AUG-12	03-AUG-12	R2411716
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	03-AUG-12	03-AUG-12	R2411716
Calcium (Ca)-Total	43.1		0.20	mg/L	03-AUG-12	03-AUG-12	R2411716
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Copper (Cu)-Total	0.0043		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Iron (Fe)-Total	0.41		0.10	mg/L	03-AUG-12	03-AUG-12	R2411716
Lead (Pb)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Lithium (Li)-Total	0.0053		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Magnesium (Mg)-Total	7.91		0.050	mg/L	03-AUG-12	03-AUG-12	R2411716
Manganese (Mn)-Total	0.0433		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Molybdenum (Mo)-Total	0.00053		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Phosphorus (P)-Total	0.76		0.50	mg/L	03-AUG-12	03-AUG-12	R2411716
Potassium (K)-Total	4.47		0.10	mg/L	03-AUG-12	03-AUG-12	R2411716
Rubidium (Rb)-Total	0.00588		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Selenium (Se)-Total	<0.0050		0.0050	mg/L	03-AUG-12	03-AUG-12	R2411716
Silicon (Si)-Total	1.31		0.30	mg/L	03-AUG-12	03-AUG-12	R2411716
Silver (Ag)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Sodium (Na)-Total	22.1		0.050	mg/L	03-AUG-12	03-AUG-12	R2411716
Strontium (Sr)-Total	0.0862		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	03-AUG-12	03-AUG-12	R2411716
Thorium (Th)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Tin (Sn)-Total	<0.00060		0.00060	mg/L	03-AUG-12	03-AUG-12	R2411716
Titanium (Ti)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
Tungsten (W)-Total	<0.0020		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Uranium (U)-Total	0.00217		0.00050	mg/L	03-AUG-12	03-AUG-12	R2411716
Vanadium (V)-Total	<0.0020		0.0020	mg/L	03-AUG-12	03-AUG-12	R2411716
Zinc (Zn)-Total	<0.020		0.020	mg/L	03-AUG-12	03-AUG-12	R2411716
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	03-AUG-12	03-AUG-12	R2411716
pH							
pH	8.99		0.10	pH units		02-AUG-12	R2410487

* 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.

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
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)

Reference Information

Test Method References:

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

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.

ALS Environmental

L1187839-COFC

COC # L1187839

Page 1 of 1

Report To		**Rep**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Hamlet of Repulse Bay	☑ Standard ☐	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Kevin Tegumiar	☑ PDF ☐ Excel ☐ Digital ☑ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	P.O. Box 10, Repulse Bay, NU X0C 0H0	Email 1: mmorepulse@qiniq.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: saorepulse@qiniq.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	(867) 462-9952 Fax: (867) 462-4411	Email 3: mlusty@gov.nu.ca	**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 #: Repulse Bay Monitoring Program	
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #:	
Lab Work Order # (lab use only):		**ALS Contact:** Craig Riddell	**Sampler:** Kevin Tegumiar

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
	REP-2	30/07/12	2:04pm	Wastewater	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			8
	REP-4	3/07/12	2:46pm	Waste Water	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			8
	REP-6																
	REP-7																

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
	30/07/12	3:15pm		1-Aug	15:46	12.2°C				

GENF 20.00 Front