Summary of Effluent Sampling Down-Gradient of Soil Storage Area
Hamlet of Repulse Bay Water Licence No. 3BM-REP0409

Parameter[1]		Unit	Detection Limit	CCME Guidelines[2]	Sampling Date	
					20-Aug-14	29-Jun-12
BOD		mg/L	6.0	NG	<6.0	<6.0
Faecal Coliforms		MPN/100mL	3	NG	93	<3
pH		pH units	0.10	6.5-9	8.04	8.72
Conductivity		umhos/cm	20	NG	373	289
Total Suspended Solids		mg/L	5.0	25	<5.0	<5.0
Ammoniam Nitrogen		mg/L	0.010	1.54	<0.010	0.024
Nitrate-Nitrite		mg/L	0.050	NG	<0.050	<0.050
Oil and Grease		mg/L	2.0	NG	<2.0	<2.0
Total Phenols		mg/L	0.0010	0.004	<0.0010	<0.0010
Total Alkalinity		mg/L	20	NG	119	130
Total Hardness		mg/L	0.30	NG	158	168
Calcium		mg/L	0.10	NG	45.4	48.9
Magnesium		mg/L	0.010	NG	10.9	11.1
Potassium		mg/L	0.020	NG	2.89	2.78
Sodium		mg/L	0.030	NG	20.3	4.96
Sulphate		mg/L	0.50	NG	17.2	26.7
Total Arsenic		mg/L	0.00020	0.005	<0.00020	<0.0010
Total Cadmium		mg/L	0.000010	0.00009	<0.000010	<0.00020
Total Copper		mg/L	0.00020	0.002	0.00149	0.0042
Total Chromium		mg/L	0.0010	0.001	<0.0010	<0.0020
Total Iron		mg/L	0.10	0.3	<0.10	<0.10
Total Lead		mg/L	0.000090	0.00229	<0.000090	<0.0010
Total Mercury		mg/L	0.000010	0.000026	<0.000020	NS
Total Nickel		mg/L	0.0020	0.07879	<0.0020	<0.0020
TPH	F1 (C6-C10)	mg/L	0.10	NG	<0.10	<0.10
	F2 (C10-C16)	mg/L	0.25	NG	<0.25	<0.25
	F3 (C16-C34)	mg/L	0.25	NG	<0.25	<0.25
	F4 (C34-C50)	mg/L	0.25	NG	<0.25	<0.25
	Total Hydrocarbons (C6-C50)	mg/L	0.44	NG	<0.44	<0.44
PAH	1-Methyl Naphthalene	mg/L	0.000020	NG	<0.000020	<0.000020
	2-Methyl Naphthalene	mg/L	0.000020	NG	<0.000020	<0.000020
	Acenaphthene	mg/L	0.000020	0.0058	<0.000020	<0.000020
	Acenaphthylene	mg/L	0.000020	NG	<0.000020	<0.000020
	Anthracene	mg/L	0.000010	0.000012	<0.000010	<0.000010
	Acridine	mg/L	0.000020	0.0044	<0.000020	<0.000020
	Benzo(a)anthracene	mg/L	0.000010	0.000018	<0.000010	<0.000010
	Benzo(a)pyrene	mg/L	0.0000050	0.000015	<0.0000050	<0.0000050
	Benzo(b&j)fluoranthene	mg/L	0.000010	NG	<0.000010	<0.000010
	Benzo(g,h,i)perylene	mg/L	0.000020	NG	<0.000020	<0.000020
	Benzo(k)fluoranthene	mg/L	0.000010	NG	<0.000010	<0.000010
	Chrysene	mg/L	0.000020	NG	<0.000020	<0.000020
	Dibenzo(a,h)anthracene	mg/L	0.0000050	NG	<0.0000050	<0.0000050
	Fluoranthene	mg/L	0.000020	0.00004	<0.000020	<0.000020
	Fluorene	mg/L	0.000020	0.003	<0.000020	<0.000020
	Indeno(1,2,3-cd)pyrene	mg/L	0.000010	NG	<0.000010	<0.000010
	Naphthalene	mg/L	0.000050	0.0011	<0.000050	<0.000050
	Phenanthrene	mg/L	0.000050	0.0004	<0.000050	<0.000050
	Pyrene	mg/L	0.000010	0.000025	<0.000010	<0.000010
	Quinoline	mg/L	0.000020	0.0034	<0.000020	<0.000030
	B(a)P Total Potency Equivalent	mg/L	0.000030	NG	<0.000030	<0.000030
BTEX	Benzene	mg/L	0.00050	0.37	<0.00050	<0.00050
	Toluene	mg/L	0.0010	0.002	<0.0010	<0.0010
	Ethylbenzene	mg/L	0.00050	0.09	<0.00050	<0.00050
	Xylene	mg/L	0.00050	0.09	<0.00050	<0.00050

[1]Parameters requested in Part H, Item 13 of Water Licence

[2]Canadian Environmental Quality Guidelines - Water Quality Guidelines for the Protection of Aquatic Life

NG - No Guideline

NS - Not Sampled

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

Date Received: 21-AUG-14
Report Date: 30-AUG-14 17:17 (MT)
Version: FINAL

Client Phone: 867-462-9952

Certificate of Analysis

Lab Work Order #: L1506076

Project P.O. #: NOT SUBMITTED
Job Reference:
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
L1506076-1 REP-2							
Sampled By: JIMMY on 20-AUG-14 @ 08:30							
Matrix: WASTE WATER							
Nunavut WW Group 1							
Alkalinity							
Alkalinity, Total (as CaCO3)	185		20	mg/L		26-AUG-14	R2930538
Bicarbonate (HCO3)	225		24	mg/L		26-AUG-14	R2930538
Carbonate (CO3)	<12		12	mg/L		26-AUG-14	R2930538
Hydroxide (OH)	<6.8		6.8	mg/L		26-AUG-14	R2930538
Ammonia by colour							
Ammonia, Total (as N)	<0.010		0.010	mg/L		22-AUG-14	R2927606
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<6.0		6.0	mg/L		21-AUG-14	R2929126
Carbonaceous BOD							
BOD Carbonaceous	<6.0		6.0	mg/L		21-AUG-14	R2929126
Chloride by Ion Chromatography							
Chloride	41.7		0.50	mg/L		22-AUG-14	R2929232
Conductivity							
Conductivity	565		20	umhos/cm		26-AUG-14	R2930538
Fecal Coliform							
Fecal Coliforms	75		3	MPN/100mL		24-AUG-14	R2928217
Hardness Calculated							
Hardness (as CaCO3)	223		0.30	mg/L		28-AUG-14	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	25-AUG-14	25-AUG-14	R2927763
Nitrate as N by Ion Chromatography							
Nitrate-N	0.161		0.050	mg/L		22-AUG-14	R2929232
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.161		0.071	mg/L		26-AUG-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		22-AUG-14	R2929232
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	24-AUG-14	24-AUG-14	R2927614
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L	27-AUG-14	27-AUG-14	R2931468
Phosphorus, Total							
Phosphorus (P)-Total	0.011		0.010	mg/L		25-AUG-14	R2928472
Sulfate by Ion Chromatography							
Sulfate	35.6		0.50	mg/L		22-AUG-14	R2929232
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0080		0.0050	mg/L	27-AUG-14	27-AUG-14	R2930931
Arsenic (As)-Total	0.00023		0.00020	mg/L	27-AUG-14	27-AUG-14	R2930931
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	27-AUG-14	27-AUG-14	R2930931
Calcium (Ca)-Total	66.6		0.10	mg/L	27-AUG-14	27-AUG-14	R2930931
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	27-AUG-14	27-AUG-14	R2930931
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	27-AUG-14	27-AUG-14	R2930931
Copper (Cu)-Total	0.00151		0.00020	mg/L	27-AUG-14	27-AUG-14	R2930931
Iron (Fe)-Total	<0.10		0.10	mg/L	27-AUG-14	27-AUG-14	R2930931
Lead (Pb)-Total	<0.000090		0.000090	mg/L	27-AUG-14	27-AUG-14	R2930931
Magnesium (Mg)-Total	13.7		0.010	mg/L	27-AUG-14	27-AUG-14	R2930931
Manganese (Mn)-Total	0.00352		0.00030	mg/L	27-AUG-14	27-AUG-14	R2930931
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	27-AUG-14	27-AUG-14	R2930931
Potassium (K)-Total	4.03		0.020	mg/L	27-AUG-14	27-AUG-14	R2930931
Sodium (Na)-Total	30.3		0.030	mg/L	27-AUG-14	27-AUG-14	R2930931
Zinc (Zn)-Total	0.0024		0.0020	mg/L	27-AUG-14	27-AUG-14	R2930931

* 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
L1506076-1 REP-2							
Sampled By: JIMMY on 20-AUG-14 @ 08:30							
Matrix: WASTE WATER							
Total Organic Carbon							
Total Organic Carbon	9.7		1.0	mg/L		27-AUG-14	R2930506
Total Suspended Solids							
Total Suspended Solids	6.0		5.0	mg/L		22-AUG-14	R2929247
pH							
pH	8.24		0.10	pH units		26-AUG-14	R2930538
L1506076-2 REP-4							
Sampled By: JIMMY on 20-AUG-14 @ 09:30							
Matrix: WASTE WATER							
Nunavut WW Group 1							
Alkalinity							
Alkalinity, Total (as CaCO3)	157		20	mg/L		26-AUG-14	R2930538
Bicarbonate (HCO3)	192		24	mg/L		26-AUG-14	R2930538
Carbonate (CO3)	<12		12	mg/L		26-AUG-14	R2930538
Hydroxide (OH)	<6.8		6.8	mg/L		26-AUG-14	R2930538
Ammonia by colour							
Ammonia, Total (as N)	5.6	DLA	1.0	mg/L		26-AUG-14	R2930092
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	21.9		6.0	mg/L		21-AUG-14	R2929126
Carbonaceous BOD							
BOD Carbonaceous	21.1		6.0	mg/L		21-AUG-14	R2929126
Chloride by Ion Chromatography							
Chloride	27.4		0.50	mg/L		22-AUG-14	R2929232
Conductivity							
Conductivity	456		20	umhos/cm		26-AUG-14	R2930538
Fecal Coliform							
Fecal Coliforms	4300		3	MPN/100mL		24-AUG-14	R2928217
Hardness Calculated							
Hardness (as CaCO3)	146		0.30	mg/L		28-AUG-14	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	25-AUG-14	25-AUG-14	R2927763
Nitrate as N by Ion Chromatography							
Nitrate-N	0.638		0.050	mg/L		22-AUG-14	R2929232
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.862		0.071	mg/L		26-AUG-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	0.223		0.050	mg/L		22-AUG-14	R2929232
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	24-AUG-14	24-AUG-14	R2927614
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L	27-AUG-14	27-AUG-14	R2931468
Phosphorus, Total							
Phosphorus (P)-Total	1.83		0.010	mg/L		25-AUG-14	R2928472
Sulfate by Ion Chromatography							
Sulfate	17.1		0.50	mg/L		22-AUG-14	R2929232
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0653		0.0050	mg/L	27-AUG-14	27-AUG-14	R2930931
Arsenic (As)-Total	0.00035		0.00020	mg/L	27-AUG-14	27-AUG-14	R2930931
Cadmium (Cd)-Total	0.000013		0.000010	mg/L	27-AUG-14	27-AUG-14	R2930931
Calcium (Ca)-Total	44.3		0.10	mg/L	27-AUG-14	27-AUG-14	R2930931
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	27-AUG-14	27-AUG-14	R2930931
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	27-AUG-14	27-AUG-14	R2930931

* 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
L1506076-2 REP-4							
Sampled By: JIMMY on 20-AUG-14 @ 09:30							
Matrix: WASTE WATER							
Total Metals by ICP-MS							
Copper (Cu)-Total	0.00607		0.00020	mg/L	27-AUG-14	27-AUG-14	R2930931
Iron (Fe)-Total	0.30		0.10	mg/L	27-AUG-14	27-AUG-14	R2930931
Lead (Pb)-Total	0.000173		0.000090	mg/L	27-AUG-14	27-AUG-14	R2930931
Magnesium (Mg)-Total	8.54		0.010	mg/L	27-AUG-14	27-AUG-14	R2930931
Manganese (Mn)-Total	0.0354		0.00030	mg/L	27-AUG-14	27-AUG-14	R2930931
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	27-AUG-14	27-AUG-14	R2930931
Potassium (K)-Total	6.77		0.020	mg/L	27-AUG-14	27-AUG-14	R2930931
Sodium (Na)-Total	27.0		0.030	mg/L	27-AUG-14	27-AUG-14	R2930931
Zinc (Zn)-Total	0.0103		0.0020	mg/L	27-AUG-14	27-AUG-14	R2930931
Total Organic Carbon							
Total Organic Carbon	25.4		1.0	mg/L		28-AUG-14	R2933649
Total Suspended Solids							
Total Suspended Solids	42.0		5.0	mg/L		22-AUG-14	R2929247
pH							
pH	8.07		0.10	pH units		26-AUG-14	R2930538
L1506076-3 REP-7							
Sampled By: JIMMY on 20-AUG-14 @ 09:00							
Matrix: WASTE WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		23-AUG-14	R2927786
Toluene	<0.0010		0.0010	mg/L		23-AUG-14	R2927786
Ethyl benzene	<0.00050		0.00050	mg/L		23-AUG-14	R2927786
o-Xylene	<0.00050		0.00050	mg/L		23-AUG-14	R2927786
m+p-Xylenes	<0.00050		0.00050	mg/L		23-AUG-14	R2927786
F1 (C6-C10)	<0.10		0.10	mg/L		23-AUG-14	R2927786
Surrogate: 4-Bromofluorobenzene (SS)	98.3		70-130	%		23-AUG-14	R2927786
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		29-AUG-14	
F2-Naphth	<0.25		0.25	mg/L		29-AUG-14	
F3-PAH	<0.25		0.25	mg/L		29-AUG-14	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		29-AUG-14	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	22-AUG-14	22-AUG-14	R2926689
F3 (C16-C34)	<0.25		0.25	mg/L	22-AUG-14	22-AUG-14	R2926689
F4 (C34-C50)	<0.25		0.25	mg/L	22-AUG-14	22-AUG-14	R2926689
Surrogate: 2-Bromobenzotrifluoride	96.0		60-140	%	22-AUG-14	22-AUG-14	R2926689
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.0015		0.0015	mg/L		26-AUG-14	
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368
Acenaphthene	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368
Acenaphthylene	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368
Anthracene	<0.000010		0.000010	mg/L	27-AUG-14	29-AUG-14	R2933368
Acridine	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368
Benzo(a)anthracene	<0.000010		0.000010	mg/L	27-AUG-14	29-AUG-14	R2933368
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	27-AUG-14	29-AUG-14	R2933368
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	27-AUG-14	29-AUG-14	R2933368
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368

* 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
L1506076-3 REP-7							
Sampled By: JIMMY on 20-AUG-14 @ 09:00							
Matrix: WASTE WATER							
Polyaromatic Hydrocarbons (PAHs)							
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	27-AUG-14	29-AUG-14	R2933368
Chrysene	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	27-AUG-14	29-AUG-14	R2933368
Fluoranthene	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368
Fluorene	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	27-AUG-14	29-AUG-14	R2933368
Naphthalene	<0.000050		0.000050	mg/L	27-AUG-14	29-AUG-14	R2933368
Phenanthrene	<0.000050		0.000050	mg/L	27-AUG-14	29-AUG-14	R2933368
Pyrene	<0.000010		0.000010	mg/L	27-AUG-14	29-AUG-14	R2933368
Quinoline	<0.000020		0.000020	mg/L	27-AUG-14	29-AUG-14	R2933368
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	27-AUG-14	29-AUG-14	R2933368
Surrogate: Acenaphthene d10	86.8		40-130	%	27-AUG-14	29-AUG-14	R2933368
Surrogate: Acridine d9	96.1		40-130	%	27-AUG-14	29-AUG-14	R2933368
Surrogate: Chrysene d12	74.8		40-130	%	27-AUG-14	29-AUG-14	R2933368
Surrogate: Naphthalene d8	81.6		40-130	%	27-AUG-14	29-AUG-14	R2933368
Surrogate: Phenanthrene d10	92.1		40-130	%	27-AUG-14	29-AUG-14	R2933368
Nunavut WW Group 1							
Alkalinity							
Alkalinity, Total (as CaCO3)	119		20	mg/L		26-AUG-14	R2930538
Bicarbonate (HCO3)	146		24	mg/L		26-AUG-14	R2930538
Carbonate (CO3)	<12		12	mg/L		26-AUG-14	R2930538
Hydroxide (OH)	<6.8		6.8	mg/L		26-AUG-14	R2930538
Ammonia by colour							
Ammonia, Total (as N)	<0.010		0.010	mg/L		22-AUG-14	R2927606
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<6.0		6.0	mg/L		21-AUG-14	R2929126
Carbonaceous BOD							
BOD Carbonaceous	<6.0		6.0	mg/L		21-AUG-14	R2929126
Chloride by Ion Chromatography							
Chloride	31.6		0.50	mg/L		22-AUG-14	R2929232
Conductivity							
Conductivity	373		20	umhos/cm		26-AUG-14	R2930538
Fecal Coliform							
Fecal Coliforms	93		3	MPN/100mL		24-AUG-14	R2928217
Hardness Calculated							
Hardness (as CaCO3)	158		0.30	mg/L		28-AUG-14	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	25-AUG-14	25-AUG-14	R2927763
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		22-AUG-14	R2929232
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		26-AUG-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		22-AUG-14	R2929232
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	24-AUG-14	24-AUG-14	R2927614
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L	27-AUG-14	27-AUG-14	R2931468
Phosphorus, Total							
Phosphorus (P)-Total	0.012		0.010	mg/L		25-AUG-14	R2928472
Sulfate by Ion Chromatography							
Sulfate	17.2		0.50	mg/L		22-AUG-14	R2929232

* 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
L1506076-3 REP-7							
Sampled By: JIMMY on 20-AUG-14 @ 09:00							
Matrix: WASTE WATER							
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0056		0.0050	mg/L	27-AUG-14	27-AUG-14	R2930931
Arsenic (As)-Total	<0.00020		0.00020	mg/L	27-AUG-14	27-AUG-14	R2930931
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	27-AUG-14	27-AUG-14	R2930931
Calcium (Ca)-Total	45.4		0.10	mg/L	27-AUG-14	27-AUG-14	R2930931
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	27-AUG-14	27-AUG-14	R2930931
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	27-AUG-14	27-AUG-14	R2930931
Copper (Cu)-Total	0.00149		0.00020	mg/L	27-AUG-14	27-AUG-14	R2930931
Iron (Fe)-Total	<0.10		0.10	mg/L	27-AUG-14	27-AUG-14	R2930931
Lead (Pb)-Total	<0.000090		0.000090	mg/L	27-AUG-14	27-AUG-14	R2930931
Magnesium (Mg)-Total	10.9		0.010	mg/L	27-AUG-14	27-AUG-14	R2930931
Manganese (Mn)-Total	0.00488		0.00030	mg/L	27-AUG-14	27-AUG-14	R2930931
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	27-AUG-14	27-AUG-14	R2930931
Potassium (K)-Total	2.89		0.020	mg/L	27-AUG-14	27-AUG-14	R2930931
Sodium (Na)-Total	20.3		0.030	mg/L	27-AUG-14	27-AUG-14	R2930931
Zinc (Zn)-Total	0.0129		0.0020	mg/L	27-AUG-14	27-AUG-14	R2930931
Total Organic Carbon							
Total Organic Carbon	7.3		1.0	mg/L		29-AUG-14	R2933649
Total Suspended Solids							
Total Suspended Solids	<5.0		5.0	mg/L		22-AUG-14	R2929247
pH							
pH	8.04		0.10	pH units		26-AUG-14	R2930538

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

Reference Information

Sample Parameter Qualifier Key:

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

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-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 8260C / EPA 5021A

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

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

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

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

CL-IC-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
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.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average. 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors. 4. Linearity of diesel or motor oil response within 15% throughout the calibration range.			
F2-F4-FID-WP	Water	F2-F4 PHC method	CWS (CCME)
Petroleum Hydrocarbons (F2-F4) in Water Method is adapted from US EPA Method 3511: Organic Compounds in Water by Micro-extraction" (Nov 2002) with instrumental analysis as per the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method" (CCMS, Dec 2000) Water samples (in their entirety) are extracted using hexane prior to capillary column gas chromatography with flame ionization detection (GC/FID).			
FC-MPN-WP	Water	Fecal Coliform	APHA 9221E
The Most Probable Number (MPN) method is based on the Multiple Tube Fermentation technique. The results of examination of replicate tubes and dilutions of a sample are reported after confirmations specific to total coliform, fecal coliform and E. coli are performed. Results are reported in MPN/100 mL for water and MPN/gram for food and solid samples.			
HG-T-CVAF-WP	Water	Mercury Total	EPA245.7 V2.0
Mercury in filtered and unfiltered waters is oxidized with Bromine monochloride and analyzed by cold-vapour atomic fluorescence spectrometry.			
MET-T-L-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-TL
This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-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 Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PAH,PANH-WP	Water	Polyaromatic Hydrocarbons (PAHs)	EPA SW 846/8270-GC/MS
Water is spiked with a surrogate spike mix and extracted using solvent extraction techniques. Analysis is performed by GC/MS in the selected ion monitoring (SIM) mode.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SO4-IC-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.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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

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

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

Chain of Custody Numbers:

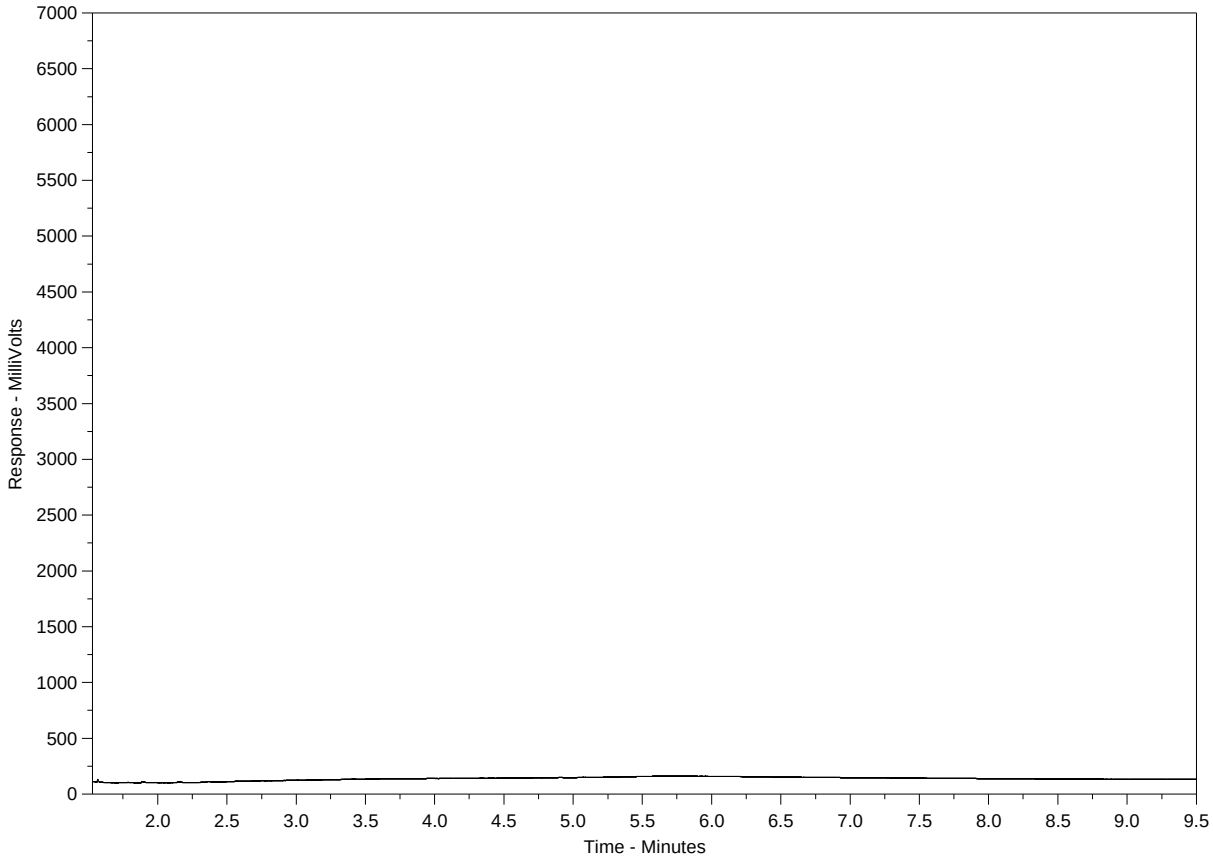
GLOSSARY OF REPORT TERMS

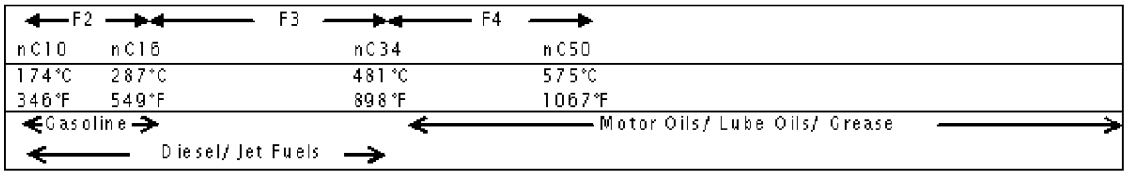
Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1506076-3
Client Sample ID: REP-7





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

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

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

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

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

L1506076-COFC

Form **10-026471**

Page ____ of ____

Report To	Report Format / Distribution	Service Requested: (Rush subject to availability)
Company: HAMLET OF REPULSE BAY	Standard: ____ Other (specify): ____	✓ Regular (Standard Turnaround Times))
Contact: KEVIN TEGU	Select: PDF ✓ Excel ____ Digital ____ Fax ____	Priority, Date Req'd: ____ (Surcharges apply)
Address: PO BOX 10	Email 1: MMOS@REPULSEBAY.CA	Emergency (1 Business Day) - 100% Surcharge
	Email 2: mkusty@gov.nu.ca	For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone: 867 462 9952 Fax: 867 462 4411		
Invoice To Same as Report ? (circle) (Yes) or No (if No, provide details)	**Client / Project Information**	**Analysis Request** (Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) (Yes) or No	Job #:	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only) [redacted]	**ALS Contact:**	**Sampler:** Jimmy

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	Routine	Metals	Nutrients	Phenols	Bacteria	Oil + Grease	PAH	BTEX, F1	F2-F4			Number of Containers
[redacted]	REP-2	20 Aug 14	08:30	WASTE WATER	✓	✓	P	P	P	P	P						7
[redacted]	REP-4	20 Aug 14	09:30	" "	✓	✓	P	P	P	P	P						8
[redacted]	REP-7	20 Aug 14	09:00	" "	✓	✓	P	P		P	P	P	P	P			12
[redacted]																	
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Special Instructions / Regulations / 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 specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
[redacted]	Aug 20/14	11:15	LD	Aug 21/14	1:00	9 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION | WHITE - LABORATORY COPY | YELLOW - CLIENT COPY | GENF 18.01 Front

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:

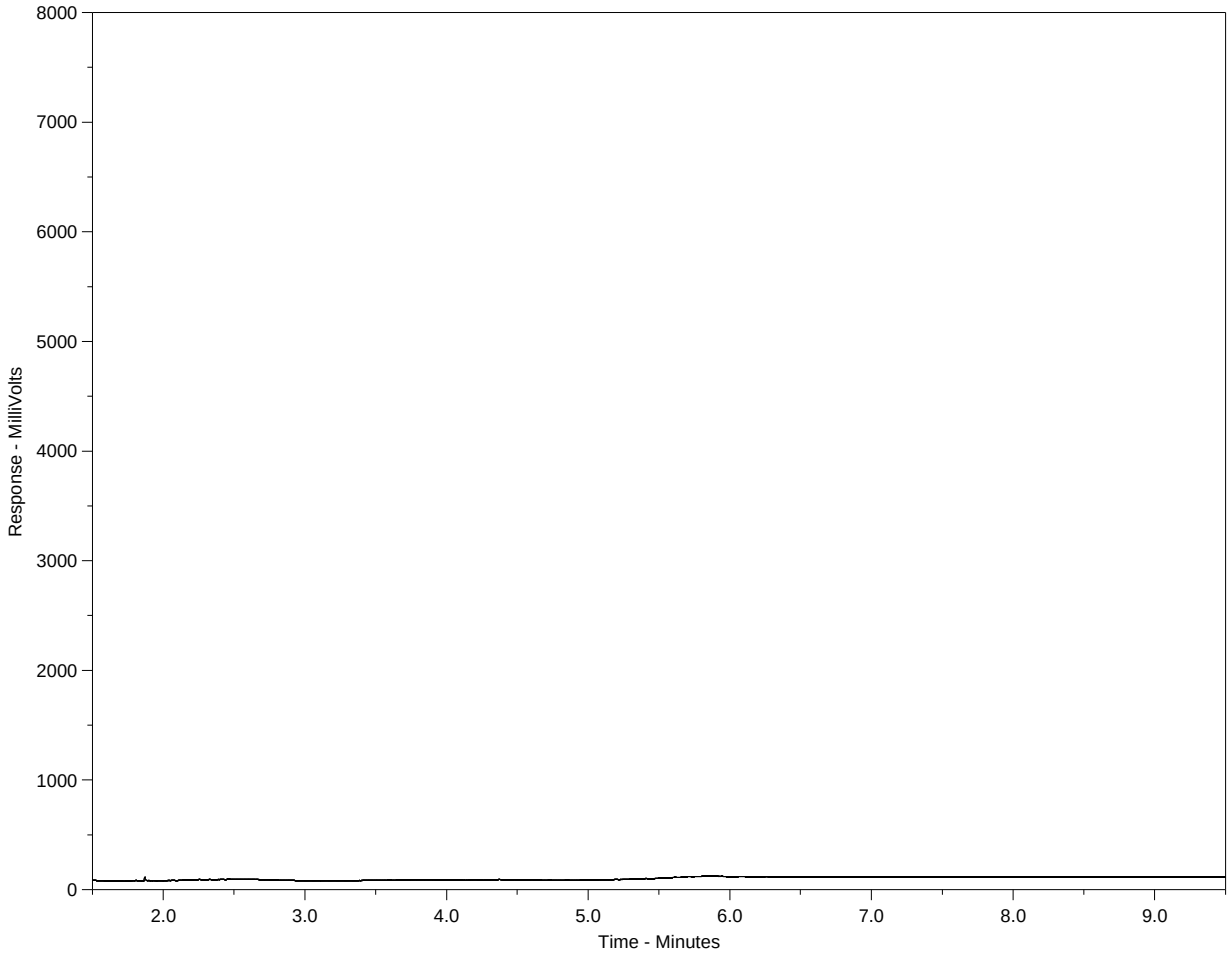
GLOSSARY OF REPORT TERMS

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 Tegumiar	☑ 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	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	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