

Phyllis Beaulieu
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Nunavut Water Board
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Email <u>licensing@nunavutwaterboard.org</u>

Date: March 28th 2013

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

Good afternoon Phyllis,

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

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

Thanks

Yason Tologanak

Regional Director, Kivalliq Region Community & Government Services

Rankin Inlet, Nunavut

XOC OGO

Phone (867) 645-8101

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#### ANNUAL REPORT FOR THE HAMLET OF WHALE COVE, 2012

#### YEAR BEING REPORTED: 2012

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

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

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

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

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

#### ANNUAL REPORT FOR THE HAMLET OF WHALE COVE, 2012

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

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

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

Not happened.

vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;

No abandonment and restoration took place in 2012 and no plan in 2013

- vii. a summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;
  - An engineering consulting firm Arktis solutions Inc. completed a feasibility Study on waste management facilities across Nunavut and recommended new guidelines. CGS is planning to use the new standard and criteria in the design for the future waste management facilities as GN guidelines.
  - The Consultant took soil samples from the landfarms in the fall of 2012, analyzed and submitted the lab results with remedial plan to CGS.
  - The consultant also prepared specifications of process management for remediation of soil in 2013.
  - William Engineering Ltd is conducting a Bathymetric Surveys on the existing water source and the proposed secondary water source. This study will be completed in 2014.
- viii. any other details on water use or waste disposal requested by the Board by November 1st of the year being reported;
  - Measure raw water intake
  - Maintain wastewater effluent quality
  - Monitor ground water quality in the solid waste site

#### ANNUAL REPORT FOR THE HAMLET OF WHALE COVE, 2012

Follow Part H: Monitoring program of the Water License.

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

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

No specific instruction was recently received to follow up.

#### ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

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

#### FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

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

The Lab Test Results for 2012











Hamlet of Whale Cove ATTN: BROCK JUNKIN

PO Box 120

Whale Cove MB X0C 0J0

Date Received: 28-JUN-12

Report Date:

11-JUL-12 21:33 (MT)

Version:

FINAL

Client Phone: 867-896-9961

## **Certificate of Analysis**

Lab Work Order #:

L1170026

Project P.O. #:

NOT SUBMITTED

Job Reference:

WHALE COVER MONITORING PROGRAM

C of C Numbers: Legal Site Desc:



Gail Hill

Account Manager

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ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721 ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

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RIGHT SOLUTIONS PROBLEM PARTICLE

L1170026 CONTD.... PAGE 2 of 10 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
_1170026-1 WHA-2							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 09:30							
Matrix: WASTE WATER							
BTEX plus F1-F4							İ
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		06-JUL-12	R239204
Toluene	<0.0010		0.0010	mg/L		06-JUL-12	R239204
Ethyl benzene	<0.00050		0.00050	mg/L		06-JUL-12	R239204
o-Xylene	<0.00050		0.00050	mg/L		06-JUL-12	R239204
m+p-Xylenes	<0.00050		0.00050	mg/L		06-JUL-12	R239204
Xylenes	<0.0015		0.0015	mg/L		06-JUL-12	R239204
F1 (C6-C10)	<0.10		0.10	mg/L		06-JUL-12	R239204
Surrogate: 4-Bromofluorobenzene (SS)	105.5		70-130	%		06-JUL-12	R239204
CCME Total Hydrocarbons						00 1111 40	
F1-BTEX	<0.10		0.10	mg/L		09-JUL-12	
F2-Naphth	<0.25		0.25	mg/L		09-JUL-12 09-JUL-12	
F3-PAH Total Hydrocarbons (C6 C50)	<0.25		0.25	mg/L		09-JUL-12 09-JUL-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		09-JUL-12	
F2-F4 PHC method F2 (C10-C16)	<0.25		0.25	mg/L	29-JUN-12	30-JUN-12	R239218
F3 (C16-C34)	<0.25		0.25	mg/L	29-JUN-12	30-JUN-12	R239218
F4 (C34-C50)	<0.25		0.25	mg/L	29-JUN-12	30-JUN-12	R239218
Surrogate: 2-Bromobenzotrifluoride	85.6		65-135	%	29-JUN-12	30-JUN-12	R239218
Miscellaneous Parameters	03.0		00 100	,,,	20 0011 12	00 0011 12	11200210
Ammonia, Total (as N)	0.201		0.010	mg/L		10-JUL-12	R239600
Biochemical Oxygen Demand	9.0		6.0	mg/L	29-JUN-12	04-JUL-12	R239212
			77%(356)(3	mg/L	29-JUN-12	04-JUL-12	R239212
BOD Carbonaceous	7.8		6.0	MPN/100mL	29-30IN-12	04-JUL-12	R239162
Fecal Coliforms	93		3		00 1111 40		announced and a second
Oil and Grease, Total	<2.0		2.0	mg/L	03-JUL-12	03-JUL-12	R239140
Phenols (4AAP)	0.0060		0.0010	mg/L	05-JUL-12	05-JUL-12	R239350
Phosphorus (P)-Total	0.207		0.010	mg/L		02-JUL-12	R239123
Total Organic Carbon	24.5		1.0	mg/L	07-JUL-12	07-JUL-12	R239453
Total Suspended Solids	18.0		5.0	mg/L		09-JUL-12	R239463
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R239306
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R239306
Acenaphthene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R239306
Acenaphthylene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12 04-JUL-12	R239306
Anthracene	<0.000010	1	0.000010	mg/L	29-JUN-12 29-JUN-12	04-JUL-12 04-JUL-12	R239306
Acridine	<0.000020		0.000020	mg/L	29-JUN-12 29-JUN-12	04-JUL-12 04-JUL-12	R239306 R239306
Benzo(a)anthracene Benzo(a)pyrene	<0.000010 <0.0000050		0.000010	mg/L mg/L	29-JUN-12 29-JUN-12	04-JUL-12 04-JUL-12	R239306
Benzo(b&j)fluoranthene	<0.0000050		0.0000050	mg/L	29-JUN-12 29-JUN-12	04-JUL-12	R239306
Benzo(g,h,i)perylene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R239306
Benzo(k)fluoranthene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R239306
Chrysene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R239306
Dibenzo(a,h)anthracene	<0.000050		0.0000050	mg/L	29-JUN-12	04-JUL-12	R239306
Fluoranthene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R239306
Fluorene	<0.000020		0.000020	mg/L	29-JUN-12	04-JUL-12	R239306
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R239306
Naphthalene	0.000055		0.000050	mg/L	29-JUN-12	04-JUL-12	R239306
Phenanthrene	<0.000050		0.000050	mg/L	29-JUN-12	04-JUL-12	R239306
Pyrene	<0.000010		0.000010	mg/L	29-JUN-12	04-JUL-12	R239306
Quinoline	0.000083		0.000020	mg/L	29-JUN-12	04-JUL-12	R239306
B(a)P Total Potency Equivalent	< 0.000030	13	0.000030	mg/L	29-JUN-12	04-JUL-12	R239306

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
_1170026-1 WHA-2							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 09:30							
Matrix: WASTE WATER							
Polyaromatic Hydrocarbons (PAHs)							
Surrogate: Acenaphthene d10	85.5		50-150	%	29-JUN-12	04-JUL-12	R239306
Surrogate: Acridine d9	94.4		50-150	%	29-JUN-12	04-JUL-12	R239306
Surrogate: Chrysene d12	84.9		50-150	%	29-JUN-12	04-JUL-12	R239306
Surrogate: Naphthalene d8	80.6		50-150	%	29-JUN-12	04-JUL-12	R239306
Surrogate: Phenanthrene d10	88.8		50-150	%	29-JUN-12	04-JUL-12	R239306
Routine Soluble + Metal scan	00.0		00 100				
Alkalinity							
Alkalinity, Total (as CaCO3)	134	=	20	mg/L		29-JUN-12	R239056
Bicarbonate (HCO3)	163		24	mg/L		29-JUN-12	R239056
Carbonate (CO3)	<12		12	mg/L		29-JUN-12	R239056
Hydroxide (OH)	<6.8		6.8	mg/L		29-JUN-12	R239056
Chloride by Ion Chromatography	¥0.0		5.0	gr L			200000
Chloride by ion Chromatography Chloride	72.9		0.50	mg/L		30-JUN-12	R239286
Conductivity	. 2.0		5.00				
Conductivity	653		20	umhos/cm		29-JUN-12	R239056
Hardness Calculated				- FARTH STATE			
Hardness Calculated Hardness (as CaCO3)	217		0.30	mg/L		04-JUL-12	
Nitrate as N by Ion Chromatography	217		0.00	9/2			
Nitrate as N by Ion Chromatography Nitrate-N	< 0.050		0.050	mg/L		30-JUN-12	R239286
Nitrate+Nitrite	<b>~0.030</b>		0.000	mgre		00 00.1 12	, LEGGEGG
Nitrate+Nitrite  Nitrate and Nitrite as N	< 0.071		0.071	mg/L		28-JUN-12	
	40.071		0.07 1	gr			
Nitrite as N by Ion Chromatography Nitrite-N	< 0.050		0.050	mg/L		30-JUN-12	R239286
	40.000		0.000	mg/L		32.3.3.1.1	
Sulfate by Ion Chromatography Sulfate	87.0		0.50	mg/L		30-JUN-12	R239286
TDS calculated	07.0		0.00	9.2			
TDS (Calculated)	379		5.0	mg/L		04-JUL-12	
Total Metals by ICP-MS	010		0.0	5.=			
Aluminum (Al)-Total	0.095		0.020	mg/L	03-JUL-12	03-JUL-12	R239220
Antimony (Sb)-Total	0.0029		0.0010	mg/L	03-JUL-12	03-JUL-12	R239220
Arsenic (As)-Total	0.0025		0.0010	mg/L	03-JUL-12	03-JUL-12	R239220
Barium (Ba)-Total	0.0305		0.00050	mg/L	03-JUL-12	03-JUL-12	R239220
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R239220
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R239220
Boron (B)-Total	0.255		0.030	mg/L	03-JUL-12	03-JUL-12	R239220
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	03-JUL-12	03-JUL-12	R239220
Calcium (Ca)-Total	69.8		0.20	mg/L	03-JUL-12	03-JUL-12	R239220
	<0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R239220
Cesium (Cs)-Total	0.0033		0.00030	mg/L	03-JUL-12	03-JUL-12	R239220
Chromium (Cr)-Total				mg/L	03-JUL-12	03-JUL-12	R239220
Cobalt (Co)-Total	0.00094		0.00050	mg/L	03-JUL-12	03-JUL-12	R239220
Copper (Cu)-Total	0.0119		0.0020	T	03-JUL-12	03-JUL-12	R239220
Iron (Fe)-Total	1.74		0.10	mg/L	03-JUL-12	03-JUL-12	R239220
Lead (Pb)-Total	0.0020		0.0010	mg/L	03-JUL-12 03-JUL-12	03-JUL-12	R239220
Lithium (Li)-Total	0.0067		0.0020	mg/L	03-JUL-12 03-JUL-12	03-JUL-12	R239220
Magnesium (Mg)-Total	10.4		0.050	mg/L		03-JUL-12 03-JUL-12	
Manganese (Mn)-Total	0.183		0.0010	mg/L	03-JUL-12		R239220
Molybdenum (Mo)-Total	0.0360		0.00050	mg/L	03-JUL-12	03-JUL-12	R239220
Nickel (Ni)-Total	0.0069		0.0020	mg/L	03-JUL-12	03-JUL-12	R239220
Phosphorus (P)-Total	<0.50		0.50	mg/L	03-JUL-12	03-JUL-12	R239220
Potassium (K)-Total	8.01		0.10	mg/L	03-JUL-12	03-JUL-12	R239220
Rubidium (Rb)-Total	0.00693		0.00050	mg/L	03-JUL-12	03-JUL-12	R239220
Selenium (Se)-Total	0.0051		0.0050	mg/L	03-JUL-12	03-JUL-12	R239220

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

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Sample Details/Para	ameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1170026-1 WH	A-2							
Sampled By: BAF	RB ULURKSIT on 27-JUN-12 @ 09:30							
Matrix: WA	STE WATER							
Total Metals by I	CP-MS							
Silicon (Si)-Total		1.26		0.30	mg/L	03-JUL-12	03-JUL-12	R239220
Silver (Ag)-Total		<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R239220
Sodium (Na)-Tota	Victoria de la Contractica del Contractica de la	50.6		0.050	mg/L	03-JUL-12	03-JUL-12	R239220
Strontium (Sr)-To		0.490		0.00050	mg/L	03-JUL-12	03-JUL-12	R239220
Tellurium (Te)-To		<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R239220
Thallium (TI)-Tota	Neo	<0.0050		0.0050	mg/L	03-JUL-12	03-JUL-12	R239220
Thorium (Th)-Tota	ai	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R239220
Tin (Sn)-Total Titanium (Ti)-Tota		<0.00060		0.00060	mg/L	03-JUL-12 03-JUL-12	03-JUL-12 03-JUL-12	R239220 R239220
Tungsten (W)-Tota		0.0043 <0.0020		0.0010	mg/L mg/L	03-JUL-12 03-JUL-12	03-JUL-12	R239220
Uranium (U)-Tota	ll l	0.0020		0.0020	mg/L	03-JUL-12	03-JUL-12	R239220
Vanadium (V)-Tota	The state of the s	<0.0020		0.00030	mg/L	03-JUL-12	03-JUL-12	R239220
Zinc (Zn)-Total		0.051		0.020	mg/L	03-JUL-12	03-JUL-12	R239220
Zirconium (Zr)-To	tal	<0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R239220
pH	8886							
pН		7.94		0.10	pH units		29-JUN-12	R239056
.1170026-2 WH								
Sampled By: BAF	RB ULURKSIT on 27-JUN-12 @ 10:20							
Matrix: WA	STE WATER							
Miscellaneous P	arameters							
Ammonia, Total (a	as N)	27.2	DLA	1.0	mg/L		11-JUL-12	R239650
Biochemical Oxyg	en Demand	21.0		6.0	mg/L	29-JUN-12	04-JUL-12	R239212
BOD Carbonaceo	us	19.8		6.0	mg/L	29-JUN-12	04-JUL-12	R239212
Fecal Coliforms		7500		3	MPN/100mL		02-JUL-12	R239162
Oil and Grease, T	otal	<2.0		2.0	mg/L	03-JUL-12	03-JUL-12	R239140
Phenols (4AAP)		0.0020		0.0010	mg/L	05-JUL-12	05-JUL-12	R239350
Phosphorus (P)-T	otal	4.79		0.010	mg/L		02-JUL-12	R239123
Total Organic Car		35.0		1.0	mg/L	07-JUL-12	07-JUL-12	R239453
Total Suspended		40.0		5.0	mg/L		09-JUL-12	R239463
Routine Soluble +		10.0		0.0				
Alkalinity								
Alkalinity, Total (a	s CaCO3)	193		20	mg/L		29-JUN-12	R239056
Bicarbonate (HCC	03)	204		24	mg/L		29-JUN-12	R239056
Carbonate (CO3)		15		12	mg/L		29-JUN-12	R239056
Hydroxide (OH)		<6.8		6.8	mg/L		29-JUN-12	R239056
Chloride by Ion (	Chromatography	70.0		0.50	w. w./l		20 1111 12	Daggage
Chloride		79.8		0.50	mg/L		30-JUN-12	R239286
Conductivity Conductivity		678		20	umhos/cm		29-JUN-12	R239056
Hardness Calcul Hardness (as CaC		82.5		0.30	mg/L		04-JUL-12	
Nitrate as N by Id	on Chromatography							B00
Nitrate-N		0.202		0.050	mg/L		30-JUN-12	R239286
Nitrate+Nitrite Nitrate and Nitrite	ac N	0.206		0.074	ma/l		28-JUN-12	
Nitrite as N by Io	as N n Chromatography	0.296		0.071	mg/L			
Nitrite-N Sulfate by Ion Ch	uromatography	0.095		0.050	mg/L		30-JUN-12	R239286
Sulfate by lon Cr	Tomatography	21.2		0.50	mg/L		30-JUN-12	R239286
TDS calculated	1							
TDS (Calculated)		331		5.0	mg/L		04-JUL-12	

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

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s Extracted	d Analyzed	Batch
/L 03-JUL-1	12 03-JUL-12	R2392203
/L 03-JUL-1		R2392203
/L 03-JUL-1:	경영장 아이들은 유기에 가장 아이를 가지 않는데 없었다.	R2392203
/L 03-JUL-1:		R2392203
/L 03-JUL-1:	사람이 다 없는 것으로 가입다.	R2392203
/L 03-JUL-1:		R2392203
/L 03-JUL-1:		R2392203
/L 03-JUL-1:	3.선생님 [1] - 선생님 "[3.11]( " 5.12]().	R2392203
/L 03-JUL-1:	[B](100]   [B]	R2392203
/L 03-JUL-1:	회사는 길	R2392203
/L 03-JUL-1:		R2392203
/L 03-JUL-1	101	R2392203
/L 03-JUL-1:		R2392203
/L 03-JUL-12		R2392203
/L 03-JUL-12		R2392203
/L 03-JUL-1:		R2392203
		R2392203
		R2392203
	The same of the sa	
/L 03-JUL-12 /L 03-JUL-12		R2392203
프로		R2392203
젊장		R2392203
/L 03-JUL-12		
/L 03-JUL-12		R2392203
/L 03-JUL-12	얼마를 그를 들었다면 하셨다면 하고 하셨다.	R2392203
/L 03-JUL-12		R2392203
/L 03-JUL-12	12 03-JUL-12	R2392203
nits	29-JUN-12	R2390568
nto	23-30IN-12	112380300
	1	
		R2396000
L 29-JUN-1:	12 04-JUL-12	R2392125
L 29-JUN-1:	12 04-JUL-12	R2392124
)0mL	02-JUL-12	R2391621
L 03-JUL-12		R2391401
		R2393500
/	/L 29-JUN- 00mL /L 03-JUL-	/L 29-JUN-12 04-JUL-12 /L 29-JUN-12 04-JUL-12 00mL 02-JUL-12 /L 03-JUL-12 03-JUL-12

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1170026 CONTD.... PAGE 6 of 10 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1170026-3 WHA-4							
Sampled By: BARB ULURKSIT on 27-JUN-12 @ 10:00	)						
Matrix: WASTE WATER							
Phosphorus (P)-Total	1.31		0.010	mg/L		02-JUL-12	R2391239
Total Organic Carbon	33.5		1.0	mg/L	07-JUL-12	07-JUL-12	R2394539
Total Suspended Solids	47.0		5.0	mg/L	01 002 12	09-JUL-12	R239463
Routine Soluble + Metal scan	47.0		3.0	mg/L		05-50L-12	112334031
Alkalinity							
Alkalinity, Total (as CaCO3)	220		20	mg/L		29-JUN-12	R2390568
Bicarbonate (HCO3)	254		24	mg/L		29-JUN-12	R2390568
Carbonate (CO3)	<12		12	mg/L		29-JUN-12	R2390568
Hydroxide (OH)	<6.8		6.8	mg/L		29-JUN-12	R2390568
Chloride by Ion Chromatography				10.70			
Chloride	137		0.50	mg/L		30-JUN-12	R2392864
Conductivity							
Conductivity	908		20	umhos/cm		29-JUN-12	R2390568
Hardness Calculated						200000000000000000000000000000000000000	
Hardness (as CaCO3)	196		0.30	mg/L		04-JUL-12	
Nitrate as N by Ion Chromatography	- 900.0000000		000000000000000000000000000000000000000				
Nitrate-N	<0.050		0.050	mg/L		30-JUN-12	R2392864
Nitrate+Nitrite		1 1				00 11111 40	
Nitrate and Nitrite as N	<0.071		0.071	mg/L		28-JUN-12	
Nitrite as N by Ion Chromatography Nitrite-N	<0.0E0		0.050	mall		30-JUN-12	R2392864
INVARIANT MATERIAL PROGRAMMENT OF THE PROGRAMMENT O	<0.050		0.050	mg/L		30-30N-12	K2392004
Sulfate by Ion Chromatography Sulfate	41.9		0.50	mg/L		30-JUN-12	R2392864
TDS calculated	41.5		0.50	mg/L		30-3014-12	11233200
TDS (Calculated)	521		5.0	mg/L		04-JUL-12	
Total Metals by ICP-MS	021		0.0	gr.		0.002.12	
Aluminum (Al)-Total	0.233		0.020	mg/L	03-JUL-12	03-JUL-12	R2392203
Antimony (Sb)-Total	< 0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Arsenic (As)-Total	0.0107		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Barium (Ba)-Total	0.0287		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Beryllium (Be)-Total	< 0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Bismuth (Bi)-Total	< 0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Boron (B)-Total	0.197		0.030	mg/L	03-JUL-12	03-JUL-12	R2392203
Cadmium (Cd)-Total	< 0.00020		0.00020	mg/L	03-JUL-12	03-JUL-12	R2392203
Calcium (Ca)-Total	56.7		0.20	mg/L	03-JUL-12	03-JUL-12	R2392203
Cesium (Cs)-Total	< 0.00050		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Chromium (Cr)-Total	0.0028		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Cobalt (Co)-Total	0.00122		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Copper (Cu)-Total	0.0029		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Iron (Fe)-Total	0.73		0.10	mg/L	03-JUL-12	03-JUL-12	R2392203
Lead (Pb)-Total	< 0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Lithium (Li)-Total	0.0066		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Magnesium (Mg)-Total	13.2		0.050	mg/L	03-JUL-12	03-JUL-12	R2392203
Manganese (Mn)-Total	0.329		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Molybdenum (Mo)-Total	0.00458		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Nickel (Ni)-Total	0.0060		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
Phosphorus (P)-Total	1.22		0.50	mg/L	03-JUL-12	03-JUL-12	R2392203
Potassium (K)-Total	22.4		0.10	mg/L	03-JUL-12	03-JUL-12	R2392203
Rubidium (Rb)-Total	0.00932		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
Selenium (Se)-Total	0.0072		0.0050	mg/L	03-JUL-12	03-JUL-12	R2392203
Silicon (Si)-Total	2.01		0.30	mg/L	03-JUL-12	03-JUL-12	R2392203
Silver (Ag)-Total	< 0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
Sodium (Na)-Total	118		0.050	mg/L	03-JUL-12	03-JUL-12	R2392203

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1170026 CONTD.... PAGE 7 of 10 Version: FINAL

0.373		0.00050	mg/L	03-JUL-12	03-JUL-12	R2392203
< 0.0010		0.0010				R2392203
						R2392203
						R2392203
						R2392203
						R2392203
						R2392203
0.0023		0.0020	mg/L	03-JUL-12	03-JUL-12	R2392203
<0.020		0.020	mg/L	03-JUL-12	03-JUL-12	R2392203
< 0.0010		0.0010	mg/L	03-JUL-12	03-JUL-12	R2392203
8.50		0.10	مانور للم		20 1111 12	Dagoneer
8.50		0.10	pH units		29-JUN-12	R2390568
	1					
	<0.0010 <0.0050 <0.0010 <0.00060 0.0102 <0.0020 0.00347 0.0023 <0.020	<0.0010 <0.0050 <0.0010 <0.00060 0.0102 <0.0020 0.00347 0.0023 <0.020 <0.0010	<0.0010	<0.0010	<0.0010	<0.0010

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1170026 CONTD .... PAGE 8 of 10 Version: FINAL

Reference Information

Sample Parameter Qualifier Key:

Qualifier Description

DIA Detection Limit Adjusted For required dilution

**Test Method References:** 

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

ALK-TOT-WP Water Alkalinity

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 APHA 5210 B-5 day Incub.-O2 electrode Water Carbonaceous BOD

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 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.

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 **APHA 2510B** Water Conductivity

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

CALCULATION ETL-SOLIDS-CALC-WP TDS calculated Water

F1-F4-CALC-WP Water **CCME Total Hydrocarbons** CCME CWS-PHC DEC-2000 - PUB# 1310-L

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

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

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

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

- 1. All extraction and analysis holding times were met.
- 2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
- 3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

- 1. All extraction and analysis holding times were met.
- 2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
- 3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
- 4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

EPA 3510/8000 F2-F4 PHC method Water

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 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 and MPN/gram for food and solid samples. MPN/100 mL for water

Reference Information

L1170026 CONTD....
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Version: FINAL

Test Method References:

. oot momou recipion				
ALS Test Code	Matrix	Test Description	Method Reference**	72
IONBALANCE-OP05-WP	Water	Ion Balance Calculation No Reporting	APHA 1030E	
MET-T-MS-WP	Water	Total Metals by ICP-MS	U.S. FPA 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 analysi 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

Motor

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

На

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)

FPA 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

Mator

Total Suspended Solids

APHA 2540 D (modified)

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

TOC-WT

Water

Total Organic Carbon

**APHA 5310B** 

Sample is injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic cabon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.

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

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

Laboratory Definition Code

WP ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

WT ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

L1170026 CONTD.... PAGE 10 of 10 Version: FINAL

#### Reference Information

**Test Method References:** 

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

#### 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.

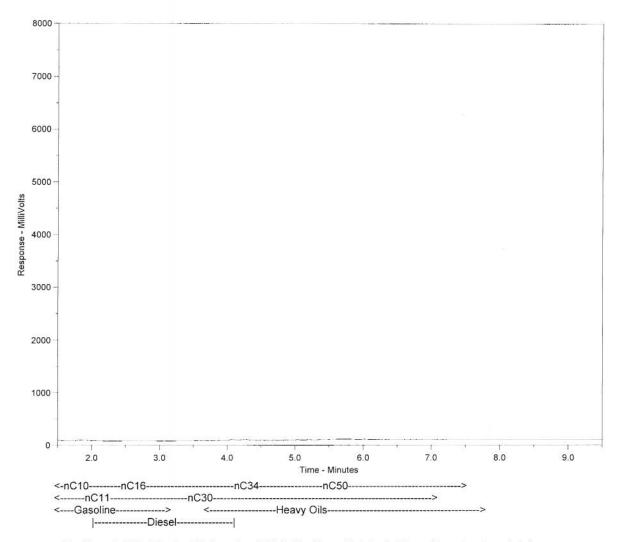
N/A - Result not available. Refer to qualifier code and definition for explanation.

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



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.

1878 LITADOS C

Page 1 of 1

# coc #

Report To				L1170026-COFC	ပု		Service Requested (Rush for routine analysis subject to availability)	dueste	(Rush fo	r routine	analysis	s subject	to avails	ability)	
Company:	Hamlet of Whale Cove	ove	242				<ul> <li>Regular (Standard Turnaround Times - Business Days)</li> </ul>	tandard T	imaround	rimes - B	usiness Da	(ske	1	I	t
Contact	Brock Junkin		교 교	Dr. Cxcel	Digital	∑ Fax	O Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	4 Busines	Days) - 5	% Surch	arge - Cor	Itact ALS	to Confirm	TAT	
Address:	P.O. Box 120, Wha	P.O. Box 120, Whale Cove, NU X0C 0J0	Email 1:	: sao(			O Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	y (1-2 Bus	Days) - 1(	0% Surd	harge - Co	intact ALS	to Confir	m TAT	
			Email 2:		.nu.ca		O Same Day	or Weeke	Same Day or Weekend Emergency - Contact ALS to Confirm TAT	ncy - Cont	tact ALS to	Confirm	TAT		
Phone:	(867) 896-9961	Fax: (867) 896-9109							An	alysis F	Analysis Request				
Invoice To	Same as Report ?	✓ Yes □ No	Clier	Client / Project Information	ation		Please indicate below Filtered, Preserved or both (F, P, F/P)	licate be	low Filte	red, Pre	served	or both	(F, P, F	(H)	
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Sample #	į į	Sample Identification (This description will appear on the report)	report)	Date (dd-mmm-yy)	Time	Sample Type									awnn
,	WHA-2			27/20/12	9:30	washe waster	Ϋ́	P P	4	4	4	P P	Ç~	19	王
,	WHA-3			21/06/12	-	wastewater	γ	P	4	9 9	2	5		80	~
	NAME OF			27/06/12		wastewater	X	9 4	<b>ئ</b>	2	٦	カイ	^	~	$\infty$
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	Also provided on	by the lise of this form the user acknowledges and agrees with the Terms and Contours as provided on a separate Excertion.  Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.	user acknowled S location addr	ges and agrees w esses, phone nur	nbers and sample	container / pres	ervation / h	a separ	ime tabl	e for co	nommo	analys	es.		
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Hamlet of Whale Cove ATTN: BROCK JUNKIN

PO Box 120

Whale Cove NU X0C 0J0

Date Received: 11-OCT-12

Report Date: 23-OCT-12 15:28 (MT)

Version: FINAL

Client Phone: 867-896-9961

## **Certificate of Analysis**

Lab Work Order #: L1222380

Project P.O. #: NOT SUBMITTED

Job Reference: WHALE COVE MONITORING PROGRAM

C of C Numbers: Legal Site Desc:

Paul Necolas

Paul Nicolas Account Manager

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ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721 ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company



L1222380 CONTD.... PAGE 2 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
_1222380-1 WHA-2							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	< 0.00050		0.00050	mg/L		16-OCT-12	R245676
Toluene	<0.0010		0.0010	mg/L		16-OCT-12	R245676
Ethyl benzene	< 0.00050		0.00050	mg/L		16-OCT-12	R245676
o-Xylene	< 0.00050		0.00050	mg/L		16-OCT-12	R245676
m+p-Xylenes	<0.00050		0.00050	mg/L		16-OCT-12	R245676
Xylenes	<0.0015		0.0015	mg/L		16-OCT-12	R245676
F1 (C6-C10)	<0.10		0.10	mg/L		16-OCT-12	R245676
Surrogate: 4-Bromofluorobenzene (SS)	92.9		70-130	%		16-OCT-12	R245676
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		22-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		22-OCT-12	
F3-PAH	<0.25		0.25	mg/L		22-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		22-OCT-12	
F2-F4 PHC method	<0.25	1	0.25	mg/L	12-OCT-12	12-OCT-12	R245457
F2 (C16 C24)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R245457
F3 (C16-C34) F4 (C34-C50)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R245457
Surrogate: 2-Bromobenzotrifluoride	99.0		65-135	%	12-OCT-12	12-OCT-12	R245457
Miscellaneous Parameters	33.0		05-155	70	12-001-12	12 001 12	11245451
Ammonia, Total (as N)	0.359		0.010	mg/L		15-OCT-12	R245708
	<6.0		6.0	mg/L		12-OCT-12	R246071
Biochemical Oxygen Demand		1 1				12-OCT-12	R24607
BOD Carbonaceous	<6.0		6.0	mg/L			
Fecal Coliforms	930		3	MPN/100mL	45 OOT 40	16-OCT-12	R245689
Oil and Grease, Total	<2.0		2.0	mg/L	15-OCT-12	15-OCT-12	R245567
Phenols (4AAP)	<0.0010		0.0010	mg/L	17-OCT-12	17-OCT-12	R245767
Phosphorus (P)-Total	0.028		0.010	mg/L		17-OCT-12	R245709
Total Organic Carbon	6.8		1.0	mg/L		18-OCT-12	R245968
Total Suspended Solids	<5.0		5.0	mg/L		12-OCT-12	R245535
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Acenaphthene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Acenaphthylene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Anthracene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Acridine	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12 20-OCT-12	R245988
Benzo(a)anthracene	<0.000010		0.000010 0.0000050	mg/L mg/L	12-OCT-12 12-OCT-12	20-OCT-12 20-OCT-12	R245988
Benzo(a)pyrene Benzo(b&j)fluoranthene	<0.0000050		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(g,h,i)perylene	<0.000010 <0.000020		0.000010	mg/L	12-OCT-12	20-OCT-12 20-OCT-12	R245988
Benzo(k)fluoranthene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Chrysene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Dibenzo(a,h)anthracene	<0.000020		0.0000050	mg/L	12-OCT-12	20-OCT-12	R245988
Fluoranthene	<0.000020		0.0000030	mg/L	12-OCT-12	20-OCT-12	R245988
Fluorene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Indeno(1,2,3-cd)pyrene	< 0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Naphthalene	<0.000050		0.000050	mg/L	12-OCT-12	20-OCT-12	R245988
Phenanthrene	<0.000050		0.000050	mg/L	12-OCT-12	20-OCT-12	R245988
Pyrene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Quinoline	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
B(a)P Total Potency Equivalent	< 0.000030		0.000030	mg/L	12-OCT-12	20-OCT-12	R245988

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1222380 CONTD.... PAGE 3 of 12 Version: FINAL

Sample Details	s/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
1222380-1	WHA-2							
Sampled By:	Terri-Rose Teenar on 10-OCT-12							
Matrix:	Surface Water							
	ic Hydrocarbons (PAHs)							
	Acenaphthene d10	98.6		50-150	%	12-OCT-12	20-OCT-12	R245988
Surrogate: A	A CONTRACTOR OF THE CONTRACTOR	110.2		50-150	%	12-OCT-12	20-OCT-12	R245988
The state of the s	Chrysene d12	92.8		50-150	%	12-OCT-12	20-OCT-12	R245988
Service of the servic	laphthalene d8	86.8		50-150	%	12-OCT-12	20-OCT-12	R245988
	Phenanthrene d10	108.6		50-150	%	12-OCT-12	20-OCT-12	R245988
	ble + Metal scan	100.0		30-130	70	12 001 12	20 001 12	112 10000
	bie i metai scan							
Alkalinity Alkalinity To	otal (as CaCO3)	180		20	mg/L		11-OCT-12	R245384
Bicarbonate		220		24	mg/L		11-OCT-12	R245384
Carbonate (		<12		12	mg/L		11-OCT-12	R245384
Hydroxide (C	97.9	<6.8		6.8	mg/L		11-OCT-12	R245384
	lon Chromatography	40.0		0.0				1000
Chloride by	ion cinomatography	80.5		0.50	mg/L		12-OCT-12	R245523
Conductivit	ty.	30.0		0.00				
Conductivity	5.	734		20	umhos/cm		11-OCT-12	R245384
Hardness C		7.54		20				
Hardness (a		225		0.30	mg/L		19-OCT-12	
	by Ion Chromatography	220		0.00	g. L			
Nitrate as N	by ion Chromatography	0.122		0.050	mg/L		12-OCT-12	R245523
Nitrate+Nitr	ito	0.122		0.000				
Nitrate and N		0.122		0.071	mg/L		15-OCT-12	
	by Ion Chromatography	0.122		0.07 1				
Nitrite as N	by ion Chromatography	< 0.050	1	0.050	mg/L		12-OCT-12	R245523
	on Chromatography	30.000		0.000	9.=			1,100,000,000
Sulfate	on Chromatography	73.1		0.50	mg/L		12-OCT-12	R245523
TDS calcula	atod	7 0.1		0.00				
TDS (Calcul		405		5.0	mg/L		19-OCT-12	
70	s by ICP-MS	100		0.0				
Aluminum (A	4000 <del>-</del> 4000 000	0.513		0.020	mg/L	18-OCT-12	18-OCT-12	R245836
Antimony (S		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Arsenic (As)		0.0015		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Barium (Ba)		0.0361		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Beryllium (B		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Bismuth (Bi)		<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Boron (B)-To		0.229		0.030	mg/L	18-OCT-12	18-OCT-12	R245836
Cadmium (C		<0.00020		0.00020	mg/L	18-OCT-12	18-OCT-12	R245836
127	(A)	63.8		0.20	mg/L	18-OCT-12	18-OCT-12	R245836
Calcium (Ca				0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Cesium (Cs)		<0.00050		0.00050		18-OCT-12	18-OCT-12	R245836
Chromium (Ca)	2001 ( P. C.	<0.0020			mg/L		18-OCT-12	R245836
Cobalt (Co)-		0.00079		0.00050	mg/L	18-OCT-12 18-OCT-12	18-OCT-12	R245836
Copper (Cu)		0.0029		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Iron (Fe)-Tol		1.10		0.10	mg/L		18-OCT-12	
Lead (Pb)-To		<0.0010		0.0010	mg/L	18-OCT-12		R245836
Lithium (Li)-		0.0062		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Magnesium	, 0,	16.0		0.050	mg/L	18-OCT-12	18-OCT-12	
Manganese	A	0.256		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Molybdenum		0.0359		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Nickel (Ni)-T		0.0033		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Phosphorus		<0.50		0.50	mg/L	18-OCT-12	18-OCT-12	R245836
Potassium (I		8.40		0.10	mg/L	18-OCT-12	18-OCT-12	R245836
Rubidium (R	A 1	0.00589		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Selenium (S	e)-Total	< 0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R245836

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1222380 CONTD.... PAGE 4 of 12 Version: FINAL

Sample Details/F	Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1222380-1	WHA-2							
Sampled By:	Terri-Rose Teenar on 10-OCT-12							
Matrix:	Surface Water							
Total Metals								
Silicon (Si)-To		2.45		0.30	mg/L	18-OCT-12	18-OCT-12	R245836
Silver (Ag)-To		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Sodium (Na)-1		54.6		0.050	mg/L	18-OCT-12	18-OCT-12	R245836
Strontium (Sr)	-Total	0.442		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Tellurium (Te)		< 0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Thallium (TI)-1	Fotal .	< 0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R245836
Thorium (Th)-	Total	< 0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Tin (Sn)-Total		< 0.00060		0.00060	mg/L	18-OCT-12	18-OCT-12	R245836
Titanium (Ti)-7	Total	0.0030		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Tungsten (W)-		<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Uranium (U)-T		0.00138		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Vanadium (V)	-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Zinc (Zn)-Tota	ıl	0.025		0.020	mg/L	18-OCT-12	18-OCT-12	R245836
Zirconium (Zr)	-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
pH		0.44		0.40	nH unite		11-OCT-12	R245384
pH	AALLA 3	8.14		0.10	pH units		11-001-12	RZ45364
	WHA-3 Terri-Rose Teenar on 10-OCT-12							
	Surface Water							
BTEX plus F1-F								
BTX plus F1	by GCMS	-0.00050		0.00050	m a/I		16-OCT-12	R245676
Benzene		<0.00050		0.00050	mg/L		16-OCT-12	R245676
Toluene		<0.0010		0.0010	mg/L mg/L		16-OCT-12	R245676
Ethyl benzene	•	<0.00050		0.00050 0.00050	mg/L		16-OCT-12	R245676
o-Xylene		<0.00050		0.00050	mg/L		16-OCT-12	R245676
m+p-Xylenes		<0.00050 <0.0015		0.00050	mg/L		16-OCT-12	R245676
Xylenes		<0.0015		0.0015	mg/L		16-OCT-12	R245676
F1 (C6-C10)	Bromofluorobenzene (SS)	101.6		70-130	%		16-OCT-12	R245676
		101.6		70-130	70		10 001 12	11240070
F1-BTEX	Hydrocarbons	<0.10		0.10	mg/L		22-OCT-12	
F2-Naphth		<0.25		0.25	mg/L		22-OCT-12	
F3-PAH		0.50		0.25	mg/L		22-OCT-12	
	rbons (C6-C50)	0.50		0.44	mg/L		22-OCT-12	
F2-F4 PHC m	STANCE STANCE OF SALESSA STANCE STANC	0.50						
F2 (C10-C16)		< 0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R245457
F3 (C16-C34)		0.50		0.25	mg/L	12-OCT-12	12-OCT-12	R245457
F4 (C34-C50)		<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R245457
The second of the second	Bromobenzotrifluoride	99.1		65-135	%	12-OCT-12	12-OCT-12	R245457
And the first of the second se	s Parameters				100			
Ammonia, Tot		15.4	DLA	1.0	mg/L		17-OCT-12	R245745
	Oxygen Demand	<6.0		6.0	mg/L		12-OCT-12	R246071
BOD Carbona		<6.0		6.0	mg/L		12-OCT-12	R246071
Fecal Coliform		>110000		3	MPN/100mL		16-OCT-12	R245689
Oil and Grease		<2.0		2.0	mg/L	15-OCT-12	15-OCT-12	R245567
					li wasanini	17-OCT-12	17-OCT-12	R245767
Phenois (4AAI	57	<0.0010		0.0010	mg/L	17-001-12		
Phosphorus (F	0 × 102 0000000	4.76		0.010	mg/L		17-OCT-12	R245709
Total Organic		23.6		1.0	mg/L		18-OCT-12	R245968
Total Suspend	ded Solids	<5.0		5.0	mg/L		12-OCT-12	R245535
Polyaromatic	Hydrocarbons (PAHs)				E. v			

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1222380 CONTD.... PAGE 5 of 12 Version: FINAL

Sample Details/	Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
1222380-2	WHA-3							
Sampled By:	Terri-Rose Teenar on 10-OCT-12							
Matrix:	Surface Water							
Polvaromatic	c Hydrocarbons (PAHs)							
1-Methyl Naphthalene		<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
2-Methyl Nap	hthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R2459881
Acenaphthen	e	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Acenaphthyle	ene	<0.000040	DLM	0.000040	mg/L	12-OCT-12	20-OCT-12	R245988
Anthracene		<0.000020	DLM	0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Acridine		<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(a)anth	racene	<0.000020	DLM	0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(a)pyre	ne	<0.000010	DLM	0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(b&j)flu	oranthene	<0.000020	DLM	0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(g,h,i)p		<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(k)fluor		< 0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Chrysene		<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Dibenzo(a,h)a	anthracene	<0.000050		0.0000050	mg/L	12-OCT-12	20-OCT-12	R245988
Fluoranthene		<0.000040	DLM	0.000040	mg/L	12-OCT-12	20-OCT-12	R245988
Fluorene		<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Indeno(1,2,3-	cd)pyrene	< 0.000030	DLM	0.000030	mg/L	12-OCT-12	20-OCT-12	R245988
Naphthalene	/	<0.000050		0.000050	mg/L	12-OCT-12	20-OCT-12	R245988
Phenanthrene	e	< 0.00010	DLM	0.00010	mg/L	12-OCT-12	20-OCT-12	R245988
Pyrene		<0.000040	DLM	0.000040	mg/L	12-OCT-12	20-OCT-12	R245988
Quinoline		<0.000040	DLM	0.000040	mg/L	12-OCT-12	20-OCT-12	R245988
B(a)P Total P	otency Equivalent	<0.000030		0.000030	mg/L	12-OCT-12	20-OCT-12	R245988
- 1일 : 10 : 10 : 10 : 10 : 10 : 10 : 10 :	cenaphthene d10	86.5		50-150	%	12-OCT-12	20-OCT-12	R245988
Surrogate: Ac		102.5		50-150	%	12-OCT-12	20-OCT-12	R245988
Surrogate: Ch		78.9		50-150	%	12-OCT-12	20-OCT-12	R245988
Surrogate: Na		68.9		50-150	%	12-OCT-12	20-OCT-12	R245988
And the second s	nenanthrene d10	91.5		50-150	%	12-OCT-12	20-OCT-12	R245988
	le + Metal scan							
Alkalinity	no - motal oour	+						
	al (as CaCO3)	168		20	mg/L		11-OCT-12	R245384
Bicarbonate (		205		24	mg/L		11-OCT-12	R245384
Carbonate (C		<12		12	mg/L		11-OCT-12	R245384
Hydroxide (O		<6.8		6.8	mg/L		11-OCT-12	R245384
	lon Chromatography							
Chloride	ion omatography	84.6		0.50	mg/L		12-OCT-12	R245523
Conductivity		10000000						
Conductivity		696		20	umhos/cm		11-OCT-12	R245384
Hardness Ca	alculated							
Hardness (as		104		0.30	mg/L		19-OCT-12	
Nitrate as N	by Ion Chromatography							
Nitrate-N	en Francisco a Calendario de Calendario (Calendario) (Cal	1.19		0.050	mg/L		12-OCT-12	R245523
Nitrate+Nitrit	te							
Nitrate and N	itrite as N	1.24		0.071	mg/L		15-OCT-12	
Nitrite as N b	y Ion Chromatography	0.055		0.050	mg/L		12-OCT-12	R245523
Sulfate by Ion Chromatography Sulfate		27.1		0.50	mg/L		12-OCT-12	R245523
TDS calculated TDS (Calculated)		352		5.0	mg/L		19-OCT-12	
Total Metals		332			and Section			
Aluminum (Al		0.453		0.020	mg/L	18-OCT-12	18-OCT-12	R2458362
Antimony (Sb		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362
Arsenic (As)-		0.0012	1	0.0010	mg/L	18-OCT-12	18-OCT-12	R2458362

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1222380 CONTD.... PAGE 6 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1222380-2 WHA-3							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
Total Metals by ICP-MS							
Barium (Ba)-Total	0.00626		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Boron (B)-Total	0.172		0.030	mg/L	18-OCT-12	18-OCT-12	R245836
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	18-OCT-12	18-OCT-12	R245836
Calcium (Ca)-Total	30.5		0.20	mg/L	18-OCT-12	18-OCT-12	R245836
Cesium (Cs)-Total	< 0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Copper (Cu)-Total	0.0210		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Iron (Fe)-Total	0.48		0.10	mg/L	18-OCT-12	18-OCT-12	R245836
Lead (Pb)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Lithium (Li)-Total	0.0045		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Magnesium (Mg)-Total	6.82		0.050	mg/L	18-OCT-12	18-OCT-12	R245836
Manganese (Mn)-Total	0.0539		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Molybdenum (Mo)-Total	0.00136		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Nickel (Ni)-Total	0.0028		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Phosphorus (P)-Total	5.67		0.50	mg/L	18-OCT-12	18-OCT-12	R245836
Potassium (K)-Total	18.9		0.10	mg/L	18-OCT-12	18-OCT-12	R245836
Rubidium (Rb)-Total	0.0198		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Selenium (Se)-Total	<0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R245836
Silicon (Si)-Total	2.15		0.30	mg/L	18-OCT-12	18-OCT-12	R245836
Silver (Ag)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Sodium (Na)-Total	77.7		0.050	mg/L	18-OCT-12	18-OCT-12	R245836
Strontium (Sr)-Total	0.119		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Thallium (TI)-Total	< 0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R245836
Thorium (Th)-Total	< 0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Tin (Sn)-Total	0.00098		0.00060	mg/L	18-OCT-12	18-OCT-12	R245836
Titanium (Ti)-Total	0.0059		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Tungsten (W)-Total	< 0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Uranium (U)-Total	< 0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Vanadium (V)-Total	<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Zinc (Zn)-Total	0.028		0.020	mg/L	18-OCT-12	18-OCT-12	R245836
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
pH	8.06		0.10	pH units		11-OCT-12	R245384
pH .1222380-3 WHA-4	3.00	+	0.10	priamia		001 12	1.2 1000
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
BTEX plus F1-F4							
BTX plus F1 by GCMS		1				40 OCT 40	D045075
Benzene	<0.00050		0.00050	mg/L		16-OCT-12	R245676
Toluene	<0.0010		0.0010	mg/L		16-OCT-12	R245676
Ethyl benzene	<0.00050		0.00050	mg/L		16-OCT-12	R245676
o-Xylene	<0.00050		0.00050	mg/L		16-OCT-12	R245676
m+p-Xylenes	<0.00050		0.00050	mg/L		16-OCT-12	R245676
Xylenes	< 0.0015		0.0015	mg/L		16-OCT-12	R245676
F1 (C6-C10)	<0.10		0.10	mg/L		16-OCT-12	R245676
Surrogate: 4-Bromofluorobenzene (SS)	95.5		70-130	%		16-OCT-12	R245676
CCME Total Hydrocarbons		1 1					1

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1222380 CONTD.... PAGE 7 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1222380-3 WHA-4							
Sampled By: Terri-Rose Teenar on 10-OCT-12							
Matrix: Surface Water							
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		22-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		22-OCT-12	
F3-PAH	<0.25		0.25	mg/L		22-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		22-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R245457
F3 (C16-C34)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R245457
F4 (C34-C50)	<0.25		0.25	mg/L	12-OCT-12	12-OCT-12	R245457
Surrogate: 2-Bromobenzotrifluoride	116.4		65-135	%	12-OCT-12	12-OCT-12	R245457
Miscellaneous Parameters							
Ammonia, Total (as N)	0.020		0.010	mg/L		15-OCT-12	R245708
Biochemical Oxygen Demand	<6.0		6.0	mg/L		12-OCT-12	R246071
BOD Carbonaceous	<6.0		6.0	mg/L		12-OCT-12	R246071
Fecal Coliforms	<3		3	MPN/100mL		16-OCT-12	R245689
Oil and Grease, Total	<2.0		2.0	mg/L	15-OCT-12	15-OCT-12	R245567
Phenols (4AAP)	<0.0010		0.0010	mg/L	17-OCT-12	17-OCT-12	R245767
Phosphorus (P)-Total	0.644		0.010	mg/L		17-OCT-12	R245709
Total Organic Carbon	12.0		1.0	mg/L		18-OCT-12	R245968
Total Suspended Solids	<5.0		5.0	mg/L		12-OCT-12	R245535
	45.0		0.0	gr.c		7-3-3	
Polyaromatic Hydrocarbons (PAHs)  1-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Acenaphthene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Acenaphthylene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Anthracene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Acridine	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(a)anthracene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Chrysene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Dibenzo(a,h)anthracene	< 0.0000050		0.0000050	mg/L	12-OCT-12	20-OCT-12	R245988
Fluoranthene	< 0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Fluorene	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
Indeno(1,2,3-cd)pyrene	< 0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Naphthalene	< 0.00010	DLM	0.00010	mg/L	12-OCT-12	20-OCT-12	R245988
Phenanthrene	< 0.000050		0.000050	mg/L	12-OCT-12	20-OCT-12	R245988
Pyrene	< 0.000010		0.000010	mg/L	12-OCT-12	20-OCT-12	R245988
Quinoline	<0.000020		0.000020	mg/L	12-OCT-12	20-OCT-12	R245988
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	12-OCT-12	20-OCT-12	R245988
Surrogate: Acenaphthene d10	94.1		50-150	%	12-OCT-12	20-OCT-12	R245988
Surrogate: Acridine d9	110.5		50-150	%	12-OCT-12	20-OCT-12	R245988
Surrogate: Chrysene d12	94.3		50-150	%	12-OCT-12	20-OCT-12	R245988
Surrogate: Naphthalene d8	79.0		50-150	%	12-OCT-12	20-OCT-12	R245988
Surrogate: Phenanthrene d10	101.3		50-150	%	12-OCT-12	20-OCT-12	R245988
Routine Soluble + Metal scan							
Alkalinity				95			
Alkalinity, Total (as CaCO3)	220		20	mg/L		11-OCT-12	R245384
Bicarbonate (HCO3)	191		24	mg/L		11-OCT-12	R245384
Carbonate (CO3)	38		12	mg/L		11-OCT-12	R245384

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1222380 CONTD.... PAGE 8 of 12 Version: FINAL

Sample Details	s/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
_1222380-3	WHA-4							
Sampled By:	Terri-Rose Teenar on 10-OCT-12							
Matrix:	Surface Water							
Alkalinity Hydroxide (0	OH)	<6.8		6.8	mg/L		11-OCT-12	R2453845
Chloride by Ion Chromatography Chloride		119		0.50	mg/L		12-OCT-12	R2455237
Conductivity Conductivity		819		20	umhos/cm		11-OCT-12	R2453845
Hardness (a	Calculated	197		0.30	mg/L		19-OCT-12	
	N by Ion Chromatography	<0.050		0.050	mg/L		12-OCT-12	R2455237
Nitrate+Nitr	rite							
Nitrate and I		<0.071		0.071	mg/L	70	15-OCT-12	
Nitrite as N Nitrite-N	by Ion Chromatography	<0.050		0.050	mg/L		12-OCT-12	R2455237
Sulfate by I Sulfate	lon Chromatography	26.2		0.50	mg/L		12-OCT-12	R2455237
TDS calculated TDS (Calculated Calculated Ca		472		5.0	mg/L		19-OCT-12	
	s by ICP-MS	0.040		0.020	mg/L	18-OCT-12	18-OCT-12	R245836
Aluminum (A	2 & .	0.219		0.020 0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Antimony (S		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Arsenic (As)		0.0062 0.0166		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Barium (Ba)		<0.0010		0.00030	mg/L	18-OCT-12	18-OCT-12	R245836
Beryllium (B		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Bismuth (Bi) Boron (B)-To	ā	0.168		0.030	mg/L	18-OCT-12	18-OCT-12	R245836
		<0.00020		0.00020	mg/L	18-OCT-12	18-OCT-12	R245836
Cadmium (Calcium (Ca	The state of the s	62.0		0.20	mg/L	18-OCT-12	18-OCT-12	R245836
Cesium (Cs		<0.00050		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Chromium (		<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Cobalt (Co)-		<0.0020		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Copper (Cu)		0.0048		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Iron (Fe)-To	•	<0.10		0.10	mg/L	18-OCT-12	18-OCT-12	R245836
Lead (Pb)-T		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Lithium (Li)-		0.0078		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Magnesium		10.2		0.050	mg/L	18-OCT-12	18-OCT-12	R245836
Manganese		0.0078		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
	n (Mo)-Total	0.00140		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Nickel (Ni)-T		0.0031		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836
Phosphorus		0.76		0.50	mg/L	18-OCT-12	18-OCT-12	R245836
Potassium (		19.2		0.10	mg/L	18-OCT-12	18-OCT-12	R245836
Rubidium (F		0.00972		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Selenium (S		<0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R245836
Silicon (Si)-Total		0.31		0.30	mg/L	18-OCT-12	18-OCT-12	R245836
Silver (Ag)-Total		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Sodium (Na		103		0.050	mg/L	18-OCT-12	18-OCT-12	R245836
Strontium (S	T	0.336		0.00050	mg/L	18-OCT-12	18-OCT-12	R245836
Tellurium (Te)-Total		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Thallium (TI)-Total		<0.0050		0.0050	mg/L	18-OCT-12	18-OCT-12	R245836
Thorium (Th		<0.0010		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Tin (Sn)-Tot		<0.00060		0.00060	mg/L	18-OCT-12	18-OCT-12	R245836
Titanium (Ti		0.0026		0.0010	mg/L	18-OCT-12	18-OCT-12	R245836
Tungsten (V		<0.0020		0.0020	mg/L	18-OCT-12	18-OCT-12	R245836

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1222380 CONTD.... PAGE 9 of 12 Version: FINAL

ample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
1222380-3 WHA-4 ampled By: Terri-Rose Teenar on 10-OCT-12 Matrix: Surface Water  Total Metals by ICP-MS Uranium (U)-Total Vanadium (V)-Total Zinc (Zn)-Total Zirconium (Zr)-Total pH pH	0.00175 <0.0020 <0.020 <0.0010 9.19		0.00050 0.0020 0.020 0.0010	mg/L mg/L mg/L mg/L	18-OCT-12 18-OCT-12 18-OCT-12 18-OCT-12	18-OCT-12 18-OCT-12 18-OCT-12 18-OCT-12	R2458362 R2458362 R2458362 R2458362
pH	9.19		0.10	pH units		11-OCT-12	R2453845

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1222380 CONTD....

Reference Information

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#### 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.

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#### 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

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 and MPN/gram for food and solid samples. MPN/100 mL for water

IONBALANCE-OP05-WP

Ion Balance Calculation No Reporting

**APHA 1030E** 

MET-T-MS-WP

Water 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 analysi of metals by inductively coupled-mass

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 NO2-IC-WP

Water Water

Nitrate+Nitrite

CALCULATION

Nitrite as N by Ion Chromatography 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)

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.

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

**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

Total Suspended Solids

APHA 2540 D (modified)

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

<sup>\*\*</sup> ALS test methods may incorporate modifications from specified reference methods to improve performance

L1222380 CONTD....

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#### Reference Information

Test Method References:

ALS Test Code N

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 ENVIR

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.

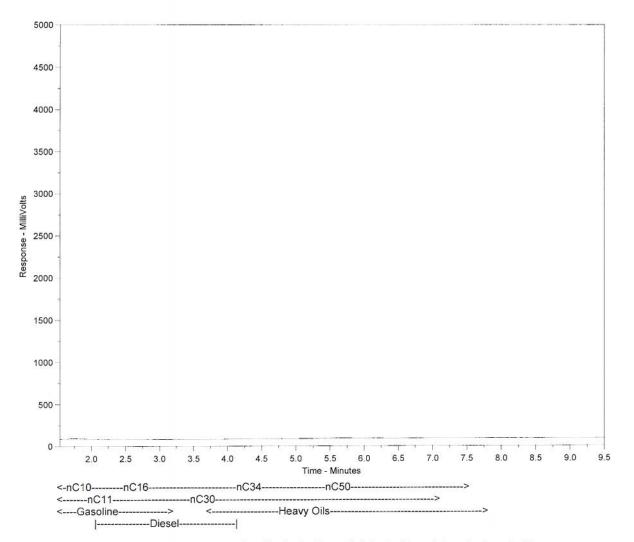
Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



ALS Sample ID: Client ID:

L1222380-1 WHA-2

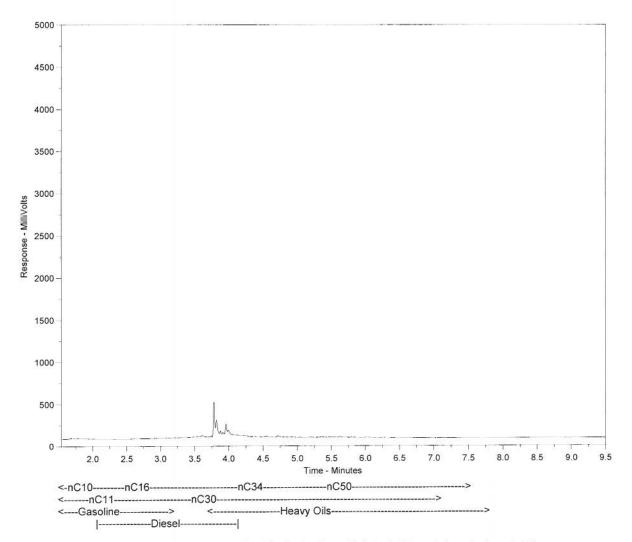


The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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.



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

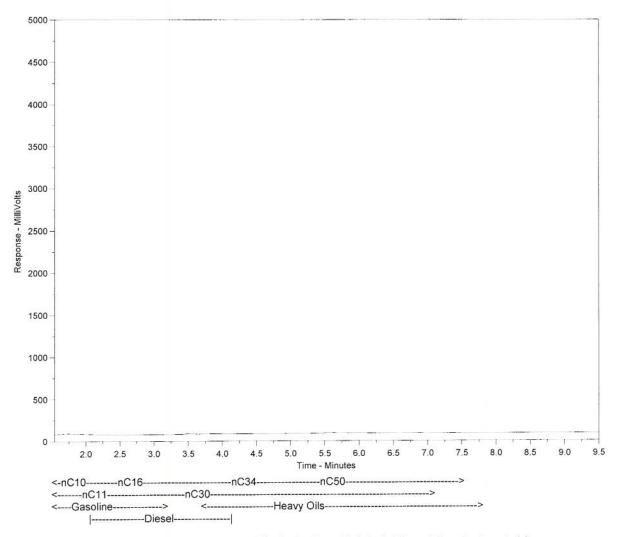


The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified 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.



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



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.

# 000

Chain of Custody / Analytical Request Form Canada Toll Free: 1 800 668 9878

www.alsglobal.com

ALS) Environmental

Address:

Phone:

Contact:

1 333x

O Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT olyaromatic Hydrocarbons P. F/P) L1222380-COFC O Same Day or Weekend Emergency - Contact ALS to Confirm TAT Please indicate below Filtered, Preserved or both (F. Analysis Request Routine Soluble + Metal Scan Service Requested O Priority (2-4 Busines. Regular (Standard 1 Biochemical Oxygen Demand Fax D Whale Cove Monitoring Program ☐ Oigital sao@whalecove.ca Report Format / Distribution mlusty@gov.nu.ca Client / Project Information Excel Other ✓ Standard PO / AFE Email 2: Email 1: Quote #: Email 3: P0. Job #: LSD: (867) 896-9109 ₽ □ No P.O. Box 120, Whale Cove, NU X0C 0J0 Fax: Fax Yes Yes  $\odot$ Hamlet of Whale Cove Hardcopy of Invoice with Report? Same as Report ? (867) 896-9961 Brock Junkin Invoice To Report To Company: Company

ALS

Lab Work Order #

Address: Contact:

Phone:

Number of Containers BTEX plus F1-F4 Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses. ecal Coliforms Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tler 1 - Natural, etc) / Hazardous Details fotal Suispended Solids [GAA4] lonard By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab. Phosphorus, Total Oil and Grease, Total Ammonia by colour Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. Total Organic Carbon Carbonaceous BOD Surface Water Surface Water Sample Type Surface Water Mid-Morn Mid-Morn Mid-Morn (hh:mm) Time Sampler: Craig Riddell 10-Oct-12 10-Oct-12 10-Oct-12 Date Contact: (This description will appear on the report) Sample Identification (lab use only) WHA-2 WHA-7 WHA-8 WHA-3 WHA-4 Sample #

If Yes add SIF GENF 20 00 Front

Observations

Time:

Date:

Verified by:

Temperature:

SHIPMENT RECEPTION (lab use only)

Date:

Received by:

Date (dd-mmm-yy) Time (hh-mm)

Terri-Rose Teenar

Released by

SHIPMENT RELEASE (client use)

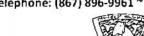
BCX11/2 2:05m 6.2°C

SHIPMENT VERIFICATION (lab use only)

Yes / No?

### HAMLET OF WHALE COVE

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







Name of Sampler(s):Ter	ri-Rose Teenar
Date of Sampling: Octo	ber 10 <sup>th</sup> , 2013
Time of Sampling:	Mid-morning
Monitoring Station Number:	/HA-2
GPS Coordinates: N <u>62</u> ° <u>10′</u> <u>176</u> ″	W <u>92°35′665</u> " (bermed pond at dump)
Weather Conditions:	
Samples:	
1 L Routine	1 L Amber PAH + Pres <sup>1</sup>
√ 500 mL BOD	$\sqrt{3} \times 40 \text{ mL BTEX, F1 vials + Pres}^1$
√ 250 mL Metals + Pres	2 x 250 mL Amber F2-F4 + Pres <sup>1</sup>
√ 250 mL Nutrients + Pres	
√ 125 mL Sterile Bacteria Bot	ele <sup>1</sup> Other:
250 mL Amber Phenols + Pro	
1 L Amber Oil & Grease + Pi	es¹
√ 100 mL Amber TOC + Pres	
Other Notes: (any unusual condi	tions, any deviation from standard procedures, etc.)

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

#### HAMLET OF WHALE COVE

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





## Water Licence Sampling Field Log

Name of Sampler(s):Ter	ri-Rose Teenar					
Date of Sampling: Octo	ber 10 <sup>th</sup> , 2013					
Time of Sampling: Mid-morning						
Monitoring Station Number:	VHA-3					
GPS Coordinates: N <u>62</u> ° <u>10′</u> <u>112</u> ″	W <u>92</u> °35′496″ (lagoon on south side)					
Weather Conditions:						
Samples:						
1 L Routine	1 L Amber PAH + Pres <sup>1</sup>					
√ 500 mL BOD	3 x 40 mL BTEX, F1 vials + Pres <sup>1</sup>					
250 mL Metals + Pres	2 x 250 mL Amber F2-F4 + Pres <sup>1</sup>					
250 mL Nutrients + Pres	. 1					
125 mL Sterile Bacteria Bot						
√ 250 mL Amber Phenols + Pr √ 1 L Amber Oil & Grease + Pr	1					
100 mL Amber TOC + Pres	res					
<u> </u>						
Other Notes: (any unusual condi	tions, any deviation from standard procedures, etc.)					

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

#### HAMLET OF WHALE COVE

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







## Water Licence Sampling Field Log

Name of Sampler(s):Terri-Ro	se Teenar
Date of Sampling: October 1	L0 <sup>th</sup> , 2013
Time of Sampling: Mic	d-morning
Monitoring Station Number: <u>WHA-</u>	4
GPS Coordinates: N <u>62°10′ 552</u> " W <u>9</u>	92°35′712″ (below lagoon in water course)
Weather Conditions:	
Samples:  1 L Routine 500 mL BOD 250 mL Metals + Pres 250 mL Nutrients + Pres 125 mL Sterile Bacteria Bottle 250 mL Amber Phenols + Pres 1 L Amber Oil & Grease + Pres 100 mL Amber TOC + Pres	1 L Amber PAH + Pres <sup>1</sup> 3 x 40 mL BTEX, F1 vials + Pres <sup>1</sup> 2 x 250 mL Amber F2-F4 + Pres <sup>1</sup> Other:
Other Notes: (any unusual conditions	, any deviation from standard procedures, etc.)

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



Hamlet of Whale Cove ATTN: BROCK JUNKIN

PO Box 120

Whale Cove NU X0C 0J0

Date Received: 28-SEP-12

Report Date:

11-OCT-12 15:39 (MT)

Version:

FINAL

Client Phone: 867-896-9961

## **Certificate of Analysis**

Lab Work Order #:

L1216427

Project P.O. #:

NOT SUBMITTED

Job Reference:

WHALE COVE MONITORING PROGRAM

C of C Numbers: Legal Site Desc:

Paul Necolas

Paul Nicolas Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721

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L1216427 CONTD.... PAGE 2 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
_1216427-1 WHA-2							
Sampled By: CLIENT on 26-SEP-12 @ 10:00							
Matrix: SURFACE WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		05-OCT-12	R244847
Toluene	<0.0010		0.0010	mg/L		05-OCT-12	R244847
Ethyl benzene	<0.00050		0.00050	mg/L		05-OCT-12	R244847
o-Xylene	<0.00050		0.00050	mg/L		05-OCT-12	R244847
m+p-Xylenes	<0.00050		0.00050	mg/L		05-OCT-12 05-OCT-12	R244847 R244847
Xylenes	<0.0015		0.0015	mg/L		05-OCT-12	R244847
F1 (C6-C10)	<0.10		0.10	mg/L %		05-OCT-12	R244847
Surrogate: 4-Bromofluorobenzene (SS)	91.1		70-130	70		05-001-12	K244047
CCME Total Hydrocarbons	<0.10		0.10	mg/L		10-OCT-12	
F1-BTEX F2-Naphth	<0.10		0.10	mg/L		10-OCT-12	
F3-PAH	<0.25		0.25	mg/L		10-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		10-OCT-12	
F2-F4 PHC method	-0.44		0.77	9/ =			
F2-F4 PHC method F2 (C10-C16)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R244675
F3 (C16-C34)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R244675
F4 (C34-C50)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R244675
Surrogate: 2-Bromobenzotrifluoride	102.5		65-135	%	29-SEP-12	29-SEP-12	R244675
Miscellaneous Parameters	102.0		1000 1000	1000			20000000000
Ammonia, Total (as N)	1.53	DLA	0.10	mg/L		01-OCT-12	R244741
Biochemical Oxygen Demand	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R244895
BOD Carbonaceous	<6.0	1	6.0	mg/L	29-SEP-12	04-OCT-12	R244895
	430		3	MPN/100mL	20 022	02-OCT-12	R244848
Fecal Coliforms	<2.0		2.0	mg/L	02-OCT-12	02-OCT-12	R244753
Oil and Grease, Total	- A 00 SCAN		1000000000	mg/L	05-OCT-12	05-OCT-12	R245027
Phenols (4AAP)	<0.0010		0.0010		03-001-12	04-OCT-12	R244904
Phosphorus (P)-Total	0.104		0.010	mg/L			
Total Organic Carbon	15.2		1.0	mg/L		03-OCT-12	R244905
Total Suspended Solids	10.0		5.0	mg/L		01-OCT-12	R244737
Polyaromatic Hydrocarbons (PAHs)					02 OCT 12	00 OCT 12	D045000
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12 03-OCT-12	09-OCT-12 09-OCT-12	R245232
Acenaphthene	<0.000020		0.000020	mg/L mg/L	03-OCT-12	09-OCT-12	R245232
Acenaphthylene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Anthracene	<0.000010 <0.000020		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Acridine	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Benzo(a)anthracene Benzo(a)pyrene	<0.000010		0.0000050	mg/L	03-OCT-12	09-OCT-12	R245232
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Benzo(g,h,i)perylene	<0.000010		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Chrysene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Dibenzo(a,h)anthracene	<0.000050		0.0000050	mg/L	03-OCT-12	09-OCT-12	R245232
Fluoranthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Fluorene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Naphthalene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R245232
Phenanthrene	< 0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R245232
Pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Quinoline	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
B(a)P Total Potency Equivalent	< 0.000030	1	0.000030	mg/L	03-OCT-12	09-OCT-12	R245232

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1216427 CONTD.... PAGE 3 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216427-1 WHA-2							
Sampled By: CLIENT on 26-SEP-12 @ 10:00							
Matrix: SURFACE WATER							
Polyaromatic Hydrocarbons (PAHs)							
Surrogate: Acenaphthene d10	103.0		50-150	%	03-OCT-12	09-OCT-12	R245232
Surrogate: Acridine d9	97.0		50-150	%	03-OCT-12	09-OCT-12	R245232
Surrogate: Chrysene d12	82.8		50-150	%	03-OCT-12	09-OCT-12	R245232
Surrogate: Naphthalene d8	100.8		50-150	%	03-OCT-12	09-OCT-12	R245232
Surrogate: Phenanthrene d10	95.1		50-150	%	03-OCT-12	09-OCT-12	R245232
Routine Soluble + Metal scan			1 30 50 10 50 50				
Alkalinity							
Alkalinity Alkalinity, Total (as CaCO3)	198		20	mg/L		29-SEP-12	R244636
Bicarbonate (HCO3)	241		24	mg/L		29-SEP-12	R244636
Carbonate (CO3)	<12		12	mg/L		29-SEP-12	R244636
Hydroxide (OH)	<6.8		6.8	mg/L		29-SEP-12	R244636
Chloride by Ion Chromatography	10.0		0.0				
Chloride by ion Chromatography Chloride	98.6		0.50	mg/L		29-SEP-12	R244809
Conductivity	30.0			J. J.		1000 AND 100	
Conductivity	897		20	umhos/cm		29-SEP-12	R244636
Hardness Calculated			1000	38			
Hardness (as CaCO3)	301		0.30	mg/L		04-OCT-12	
Nitrate as N by Ion Chromatography				J		5.1500ct 100-000ct/2047050 150-00	
Nitrate as N by ion Chromatography Nitrate-N	<0.050		0.050	mg/L		29-SEP-12	R244809
Nitrate+Nitrite	3.000						
Nitrate+Nitrite Nitrate and Nitrite as N	< 0.071		0.071	mg/L		03-OCT-12	
Nitrite as N by Ion Chromatography							
Nitrite as N by for Chromatography Nitrite-N	<0.050		0.050	mg/L		29-SEP-12	R244809
Sulfate by Ion Chromatography	0.000						
Sulfate	116		0.50	mg/L		29-SEP-12	R244809
TDS calculated				1			
TDS (Calculated)	519		5.0	mg/L		04-OCT-12	
Total Metals by ICP-MS	NOTE: 100			2.50			
Aluminum (Al)-Total	0.030		0.020	mg/L	02-OCT-12	02-OCT-12	R244889
Antimony (Sb)-Total	0.0032		0.0010	mg/L	02-OCT-12	02-OCT-12	R24488
Arsenic (As)-Total	0.0019		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Barium (Ba)-Total	0.0391		0.00050	mg/L	02-OCT-12	02-OCT-12	R24488
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R24488
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R24488
Boron (B)-Total	0.235		0.030	mg/L	02-OCT-12	02-OCT-12	R24488
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	02-OCT-12	02-OCT-12	R24488
Calcium (Ca)-Total	96.1		0.20	mg/L	02-OCT-12	02-OCT-12	R24488
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R24488
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R24488
Cobalt (Co)-Total	0.00146		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Copper (Cu)-Total	0.0112		0.0020	mg/L	02-OCT-12	02-OCT-12	R244889
Iron (Fe)-Total	1.64		0.10	mg/L	02-OCT-12	02-OCT-12	R24488
Lead (Pb)-Total	0.0016		0.0010	mg/L	02-OCT-12	02-OCT-12	R24488
Lithium (Li)-Total	0.0077		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Magnesium (Mg)-Total	14.9		0.050	mg/L	02-OCT-12	02-OCT-12	R244889
Manganese (Mn)-Total	0.331		0.0010	mg/L	02-OCT-12	02-OCT-12	R24488
Molybdenum (Mo)-Total	0.0450		0.00050	mg/L	02-OCT-12	02-OCT-12	R24488
			0.00030	mg/L	02-OCT-12	02-OCT-12	R244889
Nickel (Ni)-Total	0.0084		0.50	mg/L	02-OCT-12	02-OCT-12	R244889
Phosphorus (P)-Total	<0.50		0.50	mg/L	02-OCT-12	02-OCT-12	R244889
Potassium (K)-Total	10.4		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Rubidium (Rb)-Total	0.00750						R24488
Selenium (Se)-Total	<0.0050		0.0050	mg/L	02-OCT-12	02-OCT-12	KZ4488

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1216427 CONTD.... PAGE 4 of 12 Version: FINAL

Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
2.52		0.30	mg/L	02-OCT-12	02-OCT-12	R244889
< 0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
64.8		0.050	mg/L	02-OCT-12	02-OCT-12	R244889
0.583		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
< 0.0050		0.0050	mg/L	02-OCT-12	02-OCT-12	R244889
<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
<0.00060		0.00060	mg/L	02-OCT-12		R244889
0.0026						R244889
<0.0020						R244889
0.00147			2000 T 300 C 1			R244889
	1					R244889
3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1					R244889
<0.0010		0.0010	mg/L	02-001-12	02-001-12	R244889
7.99		0.10	pH units		29-SEP-12	R244636
2000000						
< 0.00050		0.00050	mg/L		05-OCT-12	R244847
<0.0010		0.0010	mg/L		05-OCT-12	R244847
<0.00050		0.00050	mg/L			R244847
<0.00050		0.00050				R244847
<0.00050		0.00050	mg/L			R244847
<0.0015						R244847
			172			R244847
100.0		70-130	%		05-OCT-12	R244847
		0.40			10 OCT 12	
			177			
			11			
<0.44		0.44	mg/L		10 001-12	
<0.25		0.25	ma/L	29-SEP-12	29-SEP-12	R244675
				29-SEP-12	29-SEP-12	R244675
		0.25		29-SEP-12	29-SEP-12	R244675
96.0		65-135	%	29-SEP-12	29-SEP-12	R244675
1 22.2	1					
15.0	DLA	1.0	mg/L		03-OCT-12	R244904
<6.0	7.557.50808	6.0		29-SEP-12	04-OCT-12	R244895
				29-SEP-12	04-OCT-12	R244895
						R244848
						R244753
						R245027
	DLA			55-551-12		R244904
	DLA					R244904 R244905
		5.0	mg/L mg/L		03-OCT-12	R244905
10.0						
	2.52 <0.0010 64.8 0.583 <0.0010 <0.0050 <0.0010 <0.00060 0.0026 <0.0020 0.00147 <0.0020 0.081 <0.0010 7.99  <0.00050 <0.0010 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.0044 <0.25 <0.25 <0.25 <0.25 96.0  15.0	2.52 <0.0010 64.8 0.583 <0.0010 <0.0050 <0.0010 <0.00060 0.0026 <0.0020 0.00147 <0.0020 0.081 <0.0010 7.99 <a href="mailto:color: lighth;"><a href="mailto:color: lighth;"></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a>				

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1216427 CONTD.... PAGE 5 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
_1216427-2 WHA-3							
Sampled By: CLIENT on 26-SEP-12 @ 10:20							
Matrix: SURFACE WATER							
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Acenaphthylene	< 0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Acridine	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(a)pyrene	<0.000000		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(g,h,i)perylene	<0.000010		0.000020	mg/L	03-OCT-12	09-OCT-12	R2452323
Benzo(k)fluoranthene	<0.000020	1	0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Chrysene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R2452323
Dibenzo(a,h)anthracene	<0.000020		0.0000050	mg/L	03-OCT-12	09-OCT-12	R2452323
Fluoranthene	<0.000020		0.000000	mg/L	03-OCT-12	09-OCT-12	R245232
	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Fluorene	<0.000020		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Indeno(1,2,3-cd)pyrene	<0.000010		0.000050	mg/L	03-OCT-12	09-OCT-12	R245232
Naphthalene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R245232
Phenanthrene			0.000030	mg/L	03-OCT-12	09-OCT-12	R245232
Pyrene	<0.000010 <0.000020		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Quinoline			0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
B(a)P Total Potency Equivalent	<0.000030		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acenaphthene d10	65.9			%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Acridine d9	84.2		50-150	%	03-OCT-12	09-OCT-12	R245232
Surrogate: Chrysene d12	71.6		50-150	%	03-OCT-12	09-OCT-12	R2452323
Surrogate: Naphthalene d8	N. R.		50-150		03-OCT-12	09-OCT-12	R2452323
Surrogate: Phenanthrene d10	80.2		50-150	%	03-001-12	09-001-12	NZ43Z3Z
Routine Soluble + Metal scan							
Alkalinity	400		00	ma/l		29-SEP-12	R244636
Alkalinity, Total (as CaCO3)	166		20	mg/L mg/L		29-SEP-12	R244636
Bicarbonate (HCO3)	203		24	000000000000000000000000000000000000000		29-SEP-12	R244636
Carbonate (CO3)	<12		12	mg/L		29-SEP-12	R2446360
Hydroxide (OH)	<6.8		6.8	mg/L		29-3EF-12	K2440300
Chloride by Ion Chromatography			0.50	ma m //		29-SEP-12	R244809
Chloride	82.4		0.50	mg/L		25-3LF-12	11244003
Conductivity	070		20	umhos/cm		29-SEP-12	R2446360
Conductivity	673		20	umnos/cm		25-3L1 -12	112440001
Hardness Calculated	00.0		0.20	mg/L		04-OCT-12	
Hardness (as CaCO3)	99.2		0.30	mg/L		04-001-12	
Nitrate as N by Ion Chromatography	-0.050		0.050	mg/L		29-SEP-12	R2448095
Nitrate-N	<0.050		0.050	Hig/L		25-0L1-12	11244003
Nitrate+Nitrite	0.000		0.071	mg/L		03-OCT-12	
Nitrate and Nitrite as N	0.098		0.071	mg/L		03-001-12	
Nitrite as N by Ion Chromatography Nitrite-N	0.098		0.050	mg/L		29-SEP-12	R244809
Sulfate by Ion Chromatography Sulfate	25.2		0.50	mg/L		29-SEP-12	R2448095
TDS calculated							
TDS (Calculated)	335		5.0	mg/L		04-OCT-12	
Total Metals by ICP-MS				100			
Aluminum (Al)-Total	0.229		0.020	mg/L	02-OCT-12	02-OCT-12	R244889
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Arsenic (As)-Total	0.0011	ř i	0.0010	mg/L	02-OCT-12	02-OCT-12	R244889

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1216427 CONTD.... PAGE 6 of 12 Version: FINAL

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
_1216427-2 WHA-3							
Sampled By: CLIENT on 26-SEP-12 @ 10:20							
Matrix: SURFACE WATER							
Total Metals by ICP-MS							
Barium (Ba)-Total	0.00436		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Beryllium (Be)-Total	< 0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Boron (B)-Total	0.150		0.030	mg/L	02-OCT-12	02-OCT-12	R244889
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	02-OCT-12	02-OCT-12	R244889
Calcium (Ca)-Total	29.7		0.20	mg/L	02-OCT-12	02-OCT-12	R244889
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R244889
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Copper (Cu)-Total	0.0190		0.0020	mg/L	02-OCT-12	02-OCT-12	R244889
Iron (Fe)-Total	0.46		0.10	mg/L	02-OCT-12	02-OCT-12	R244889
Lead (Pb)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Lithium (Li)-Total	0.0027		0.0020	mg/L	02-OCT-12	02-OCT-12	R244889
Magnesium (Mg)-Total	6.05		0.050	mg/L	02-OCT-12	02-OCT-12	R244889
Manganese (Mn)-Total	0.0519		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Molybdenum (Mo)-Total	0.00133		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Nickel (Ni)-Total	0.0027		0.0020	mg/L	02-OCT-12	02-OCT-12	R244889
Phosphorus (P)-Total	5.24		0.50	mg/L	02-OCT-12	02-OCT-12	R244889
Potassium (K)-Total	18.2		0.10	mg/L	02-OCT-12	02-OCT-12	R244889
Rubidium (Rb)-Total	0.0195		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Selenium (Se)-Total	< 0.0050		0.0050	mg/L	02-OCT-12	02-OCT-12	R244889
Silicon (Si)-Total	2.26		0.30	mg/L	02-OCT-12	02-OCT-12	R244889
Silver (Ag)-Total	< 0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Sodium (Na)-Total	73.0		0.050	mg/L	02-OCT-12	02-OCT-12	R244889
Strontium (Sr)-Total	0.120		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Thallium (TI)-Total	<0.0050		0.0050	mg/L	02-OCT-12	02-OCT-12	R244889
Thorium (Th)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Tin (Sn)-Total	0.00061		0.00060	mg/L	02-OCT-12	02-OCT-12	R244889
Titanium (Ti)-Total	0.0034		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
Tungsten (W)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R244889
Uranium (U)-Total	<0.00050		0.00050	mg/L	02-OCT-12	02-OCT-12	R244889
Vanadium (V)-Total	<0.0020		0.0020	mg/L	02-OCT-12	02-OCT-12	R244889
Zinc (Zn)-Total	0.025		0.020	mg/L	02-OCT-12	02-OCT-12	R244889
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	02-OCT-12	02-OCT-12	R244889
pH pH	8.03		0.10	pH units		29-SEP-12	R244636
1216427-3 WHA-4				<u> </u>			
Sampled By: CLIENT on 26-SEP-12 @ 10:40							
Matrix: SURFACE WATER							
BTEX plus F1-F4							
BTX plus F1 by GCMS Benzene	<0.00050		0.00050	mg/L		05-OCT-12	R244847
Toluene	<0.00050		0.00030	mg/L		05-OCT-12	R244847
Ethyl benzene	<0.00050		0.00050	mg/L		05-OCT-12	R244847
o-Xylene	<0.00050		0.00050	mg/L		05-OCT-12	R244847
m+p-Xylenes	<0.00050		0.00050	mg/L		05-OCT-12	R244847
Xylenes	<0.0015		0.00050	mg/L		05-OCT-12	R244847
F1 (C6-C10)	<0.10		0.10	mg/L		05-OCT-12	R244847
Surrogate: 4-Bromofluorobenzene (SS)	109.0		70-130	%		05-OCT-12	R244847
CCME Total Hydrocarbons	100.0			4.96			to the state of th

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216427-3 WHA-4							
Sampled By: CLIENT on 26-SEP-12 @ 10:40							
Matrix: SURFACE WATER							
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		10-OCT-12	
F2-Naphth	<0.25		0.25	mg/L		10-OCT-12	
F3-PAH	<0.25		0.25	mg/L		10-OCT-12	
Total Hydrocarbons (C6-C50)	<0.44		0.44	mg/L		10-OCT-12	
F2-F4 PHC method							
F2 (C10-C16)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F3 (C16-C34)	<0.25		0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
F4 (C34-C50)	<0.25	1	0.25	mg/L	29-SEP-12	29-SEP-12	R2446755
Surrogate: 2-Bromobenzotrifluoride	96.7		65-135	%	29-SEP-12	29-SEP-12	R2446755
Miscellaneous Parameters	1						
Ammonia, Total (as N)	0.025		0.010	mg/L		01-OCT-12	R2447410
Biochemical Oxygen Demand	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R2448952
BOD Carbonaceous	<6.0		6.0	mg/L	29-SEP-12	04-OCT-12	R244895
				MPN/100mL	20 021 12	02-OCT-12	R244848
Fecal Coliforms	<3		100		02 OCT 42		
Oil and Grease, Total	<2.0		2.0	mg/L	02-OCT-12	02-OCT-12	R244753
Phenols (4AAP)	<0.0010		0.0010	mg/L	05-OCT-12	05-OCT-12	R245027
Phosphorus (P)-Total	0.961		0.010	mg/L		04-OCT-12	R244904
Total Organic Carbon	13.2		1.0	mg/L		03-OCT-12	R244905
Total Suspended Solids	6.0		5.0	mg/L		01-OCT-12	R244737
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.000020	1	0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
2-Methyl Naphthalene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Acenaphthene	< 0.000020	(	0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Acenaphthylene	< 0.000020	(	0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Anthracene	<0.000010	(	0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Acridine	<0.000020	(	0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Benzo(a)anthracene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Benzo(a)pyrene	< 0.0000050	0	0.0000050	mg/L	03-OCT-12	09-OCT-12	R245232
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Benzo(g,h,i)perylene	< 0.000020	-	0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Benzo(k)fluoranthene	<0.000010	1 1	0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Chrysene	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Dibenzo(a,h)anthracene	<0.0000050	C	0.0000050	mg/L	03-OCT-12	09-OCT-12	R245232
Fluoranthene	< 0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Fluorene	< 0.000020	10	0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Naphthalene	< 0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R245232
Phenanthrene	<0.000050		0.000050	mg/L	03-OCT-12	09-OCT-12	R245232
Pyrene	<0.000010	19	0.000010	mg/L	03-OCT-12	09-OCT-12	R245232
Quinoline	<0.000020		0.000020	mg/L	03-OCT-12	09-OCT-12	R245232
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	03-OCT-12	09-OCT-12	R245232
Surrogate: Acenaphthene d10	97.7		50-150	%	03-OCT-12	09-OCT-12	R245232
Surrogate: Acridine d9	97.9		50-150	%	03-OCT-12	09-OCT-12	R245232
Surrogate: Chrysene d12	86.0		50-150	%	03-OCT-12	09-OCT-12	R245232
Surrogate: Naphthalene d8	90.0		50-150	%	03-OCT-12	09-OCT-12	R245232
Surrogate: Phenanthrene d10	96.1		50-150	%	03-OCT-12	09-OCT-12	R245232
Routine Soluble + Metal scan	attended (						
Alkalinity							
Alkalinity Alkalinity, Total (as CaCO3)	209		20	mg/L		29-SEP-12	R244636
Bicarbonate (HCO3)	181		24	mg/L		29-SEP-12	R2446360
Carbonate (CO3)	37	1	12	mg/L		29-SEP-12	R2446360

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1216427-3 WHA-4							
Sampled By: CLIENT on 26-SEP-12 @ 10:40							
Matrix: SURFACE WATER							
Alkalinity							
Hydroxide (OH)	<6.8		6.8	mg/L		29-SEP-12	R2446360
Chloride by Ion Chromatography							
Chloride	96.0		0.50	mg/L		29-SEP-12	R2448095
Conductivity							
Conductivity	703		20	umhos/cm		29-SEP-12	R2446360
Hardness Calculated							
Hardness (as CaCO3)	170		0.30	mg/L		11-OCT-12	
Nitrate as N by Ion Chromatography			0.050			29-SEP-12	R2448095
Nitrate-N	<0.050		0.050	mg/L		29-3EF-12	K2440093
Nitrate+Nitrite	<0.071		0.071	mg/L		03-OCT-12	
Nitrate and Nitrite as N	<0.071		0.071	mg/L		00 001 12	
Nitrite as N by Ion Chromatography Nitrite-N	<0.050		0.050	mg/L		29-SEP-12	R2448095
Sulfate by Ion Chromatography	-0.000		0.500	3			
Sulfate by ion Chromatography Sulfate	16.0		0.50	mg/L		29-SEP-12	R2448095
TDS calculated				-			
TDS (Calculated)	395		5.0	mg/L		11-OCT-12	
Total Metals by ICP-MS	1			200		USANCO SENSO DESCONO DE LA CASA DA CAS	
Aluminum (Al)-Total	<0.020		0.020	mg/L	02-OCT-12	10-OCT-12	R2453446
Antimony (Sb)-Total	< 0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Arsenic (As)-Total	0.0068		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Barium (Ba)-Total	0.0132	=	0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Beryllium (Be)-Total	< 0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Boron (B)-Total	0.091		0.030	mg/L	02-OCT-12	10-OCT-12	R2453446
Cadmium (Cd)-Total	<0.00020	1	0.00020	mg/L	02-OCT-12	10-OCT-12	R2453446
Calcium (Ca)-Total	53.2		0.20	mg/L	02-OCT-12	10-OCT-12	R2453446
Cesium (Cs)-Total	< 0.00050		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Chromium (Cr)-Total	< 0.0020		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446
Cobalt (Co)-Total	0.00071		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Copper (Cu)-Total	0.0068		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446
Iron (Fe)-Total	< 0.10		0.10	mg/L	02-OCT-12	10-OCT-12	R2453446
Lead (Pb)-Total	< 0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Lithium (Li)-Total	< 0.0020		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446
Magnesium (Mg)-Total	8.91		0.050	mg/L	02-OCT-12	10-OCT-12	R2453446
Manganese (Mn)-Total	0.0027		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Molybdenum (Mo)-Total	0.00144		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Nickel (Ni)-Total	0.0099		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446
Phosphorus (P)-Total	1.01		0.50	mg/L	02-OCT-12	10-OCT-12	R2453446
Potassium (K)-Total	17.7		0.10	mg/L	02-OCT-12	10-OCT-12	R2453446
Rubidium (Rb)-Total	0.0103		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Selenium (Se)-Total	<0.0050		0.0050	mg/L	02-OCT-12	10-OCT-12	R2453446
Silicon (Si)-Total	0.98		0.30	mg/L	02-OCT-12	10-OCT-12	R2453446
Silver (Ag)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Sodium (Na)-Total	77.7		0.050	mg/L	02-OCT-12	10-OCT-12	R2453446
Strontium (Sr)-Total	0.297		0.00050	mg/L	02-OCT-12	10-OCT-12	R2453446
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Thallium (TI)-Total	<0.0050		0.0050	mg/L	02-OCT-12	10-OCT-12	R2453446
Thorium (Th)-Total	< 0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Tin (Sn)-Total	<0.00060		0.00060	mg/L	02-OCT-12	10-OCT-12	R2453446
Titanium (Ti)-Total	<0.0010		0.0010	mg/L	02-OCT-12	10-OCT-12	R2453446
Tungsten (W)-Total	<0.0020		0.0020	mg/L	02-OCT-12	10-OCT-12	R2453446

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

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

<sup>\*</sup> Refer to Referenced Information for Qualifiers (if any) and Methodology.

L1216427 CONTD .... PAGE 10 of 12 Version: FINAL

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

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

Total Organic Carbon

APHA 5310 B-INSTRUMENTAL-WP

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

The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC.

TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.

CL-IC-WP

Water

Chloride by Ion Chromatography

EPA 300.1 (modified)

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

EC-WP

Water

Conductivity

**APHA 2510B** 

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

ETL-HARDNESS-TOT-WP Water

Hardness Calculated

HARDNESS CALCULATED

ETL-SOLIDS-CALC-WP

Water

TDS calculated

CALCULATION

F1-F4-CALC-WP

Water

CCME Total Hydrocarbons

CCME CWS-PHC DEC-2000 - PUB# 1310-L

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

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

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

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

- 1. All extraction and analysis holding times were met.
- 2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
- 3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

- 1. All extraction and analysis holding times were met.
- 2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.

#### Reference Information

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Test Method References:

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

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 and MPN/gram for food and solid samples. MPN/100 mL for water

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 analysi 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.

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

Water

**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

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.

<sup>\*\*</sup> ALS test methods may incorporate modifications from specified reference methods to improve performance.

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#### Reference Information

**Test Method References:** 

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

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

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

ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

**Chain of Custody Numbers:** 

#### GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample mg/kg wwt - milligrams per kilogram based on wet weight of sample mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight mg/L - unit of concentration based on volume, parts per million. < - Less than.

D.L. - The reporting limit.

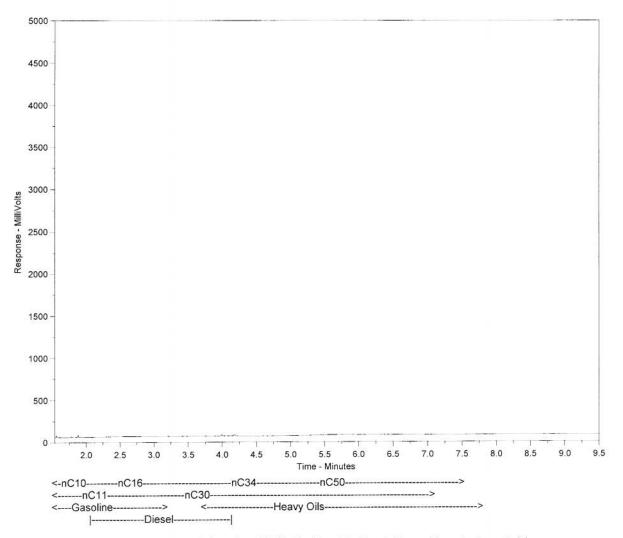
N/A - Result not available. Refer to qualifier code and definition for explanation.

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

## Hydrocarbon Distribution Report



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



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

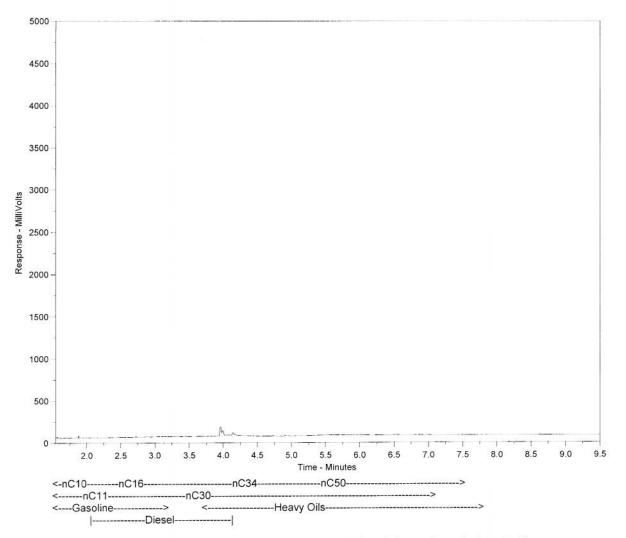
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

## Hydrocarbon Distribution Report



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



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

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

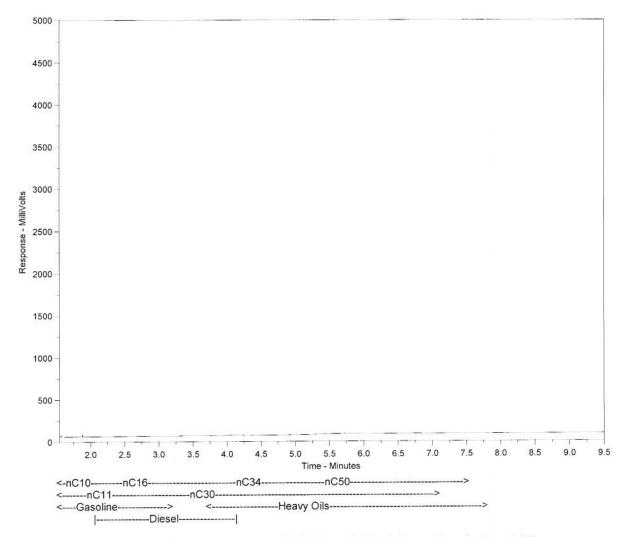
Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

# Hydrocarbon Distribution Report



ALS Sample ID: Client ID:

L1216427-3 WHA-4



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.



### HAMLET OF WHALE COVE



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



## Water Licence Sampling Field Log

Name of Sampler(s): Terri-Rose Teenar
Date of Sampling: September 26 <sup>th</sup> , 2012
Time of Sampling: Mid-morning
Monitoring Station Number: WHA-2
GPS Coordinates: N 62°10′ 176″ W 92°35′665″ (bermed pond at dump)
Weather Conditions:
Samples:
$\sqrt{ 1 \text{ L Routine}}$ 1 L Routine $\sqrt{ 1 \text{ L Amber PAH} + \text{Pres}^1 }$
$\sqrt{}$ 500 mL BOD $\sqrt{}$ 3 x 40 mL BTEX, F1 vials + Pres <sup>1</sup>
250 mL Metals + Pres
250 mL Nutrients + Pres
125 mL Sterile Bacteria Bottle <sup>1</sup> Other:
250 mL Amber Phenols + Pres
1 L Amber Oil & Grease + Pres¹
100 mL Amber TOC + Pres
Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)
Cloudy

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



### HAMLET OF WHALE COVE

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



## Water Licence Sampling Field Log

Name of Sampler(s):Terri-Rose Teenar
Date of Sampling: September 26 <sup>th</sup> , 2012
Time of Sampling:Mid-morning
Monitoring Station Number: WHA-3
GPS Coordinates: N 62°10′ 112″ W 92°35′496″ (lagoon on south side)
Weather Conditions:
Samples:
1 L Routine 1 L Amber PAH + Pres <sup>1</sup>
500 mL BOD
250 mL Metals + Pres 2 2 x 250 mL Amber F2-F4 + Pres <sup>1</sup>
√ 250 mL Nutrients + Pres  √ 125 mL Sterile Bacteria Bottle¹ Other:
250 mL Amber Phenols + Pres
1 L Amber Oil & Grease + Pres <sup>1</sup>
√ 100 mL Amber TOC + Pres
Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)
Cloudy

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



## HAMLET OF WHALE COVE

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



## Water Licence Sampling Field Log

Name of Sampler(s): Terri-Rose Teenar
Date of Sampling: September 26 <sup>th</sup> , 2012
Time of Sampling: Mid-morning
Monitoring Station Number: WHA-4
GPS Coordinates: N 62°10′ 552″ W 92°35′712″ (below lagoon in water course)
Weather Conditions:
Samples:  1 L Routine  500 mL BOD  250 mL Metals + Pres  250 mL Nutrients + Pres  125 mL Sterile Bacteria Bottle  250 mL Amber Phenols + Pres  11 L Amber Oil & Grease + Pres  100 mL Amber TOC + Pres
Other Notes: (any unusual conditions, any deviation from standard procedures, etc.)
Cloudy

CXH91817 #300

L1216427-COFC

ALS) Environmental

Observations: Yes / No ? If Yes add SIF Number of Containers rvice Requested (Rush for routine analysis subject to availability) O Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT O Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT Polyaromatic Hydrocarbons Please indicate below Filtered, Preserved or both (F, P, F/P) BTEX plus F1-F4 O Same Day or Weekend Emergency - Contact ALS to Confirm TAT SHIPMENT VERIFICATION (lab use only) Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses. Fecal Coliforms Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details Regular (Standard Turnaround Times - Business Days) sbiko2 behnaqsiu2 listoT Analysis Request Time. Routine Soluble + Metal Scan (9AA4) lonad9 By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab. Phosphorus, Total Date: Oil and Grease, Total Ammonia by colour Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. **Total Organic Carbon** Verified by: Siochemical Öxygen Demand Carbonaceous BOD ပွ Surface Water Surface Water Surface Water Sample Type Temperature: Fax 11:15am 4.8 5 SHIPMENT RECEPTION (lab use only) Whale Cove Monitoring Program Digital 10:00 10:40 Time (hh:mm) 10:20 Sampler: sao@whalecove.ca mlusty@gov.nu.ca Client / Project Information September / Sept 26/12 Sept 26/12 Sept 26/12 ☐ Excel Craig Riddell Other (dd-mmm-yy) ✓ Standard ALS Contact: PO / AFE Report Email 2: Email 1: Quote #: Email 3: Job #: PD PD LSD: Received by: (This description will appear on the report) Fax: (867) 896-9109 Date (do-mmn-yy) Time (hh-mm) Sample Identification not included **2** □ ŝ P.O. Box 120, Whale Cove, NU X0C 0J0 SHIPMENT RELEASE (client use) Fax: Yes Yes [3] 5 Hamlet of Whale Cove Hardcopy of Invoice with Report? Same as Report ? (867) 896-9961 Brock Junkin Lab Work Order # (lab use only) WHA-8-WHA-/ WHA-3 WHA-2 WHA4 Released by nvoice To Sample Report To Company: Company Address: Confact: Address # Contact Phone: Phone:

GENF 20.00 Front