ANNUAL REPORT
FOR THE HAMLET OF WHALE COVE, 2014

YEAR BEING REPORTED: 2014

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water License # 3BM-WHA0914 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;

- See attached WHA-3 Effluent Quality Limits, Monitoring Stations and Sampling Parameters Summary, and Certificate of Analysis for July 24, August 14, and September 9, 2014.

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	1,265,026.89*	Same
February	1,209,286.36*	Same
March	1,222,920.87*	Same
April	1,067,933.40	Same
May	1,278,222.20	Same
June	1,237,986.80	Same
July	1,254,150.90	Same
August	1,475,274.50	Same
September	1,589,719.90	Same
October	1,525,304.30	Same
November	1,313,091.00	Same
December	1,371,152.50	Same
ANNUAL TOTAL	**15,810,069.62**	**Same**

* Problems with the fluid system meter in January, February and March resulted in under-reported volumes. Values during these months are best estimates of water volumes.

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

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

- Repairs were made to the Solid Waste Site fence as instructed in the 2014 AANDC Inspection Report. Refer to pages 4 to 7 for pictures of the fence repairs.
- Construction of the Sewage Lagoon Expansion is scheduled for 2015.

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

- No unauthorized discharges in 2014.

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

- No abandonment and restoration work took place in 2014 and no work is planned for 2015.

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;

- Annual Reports for 2009, 2010 and 2013 were submitted with the Amendment/Renewal Application January 16, 2015.
- Hamlet of Whale Cove Plan for Compliance was submitted with the Amendment/Renewal Application January 16, 2015.

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

- Copy of Solid Waste Disposal Facilities Update Report and photographic record (due October 31, 2009) requested April 24, 2014: This report was not completed in 2009. The Compliance Plan commits to submitting to the NWB a report on the current status of the Solid Waste Site and plan for improvement by July 15, 2015.
- Signage for the Monitoring Program Stations will be ordered over the winter for installation summer 2015. Pictures of the signage at Monitoring Program Stations will be included in the 2015 Annual Report.
- A new meter will be installed at the water pumphouse to measure all fresh water

drawn from the intake pump at first Lake. A picture of the meter will be provided to the AANDC Inspector before July 15, 2015. Daily records of fresh water use will be kept and be available upon request.

- The current state of the Landfarm and soil within will be reviewed and a plan for improvement will be submitted to the NWB by July 15, 2015. As-built drawings of the Landfarm will be included with this report.

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

- The O&M Manual will be reviewed, updated and consolidated for submission to the NWB by July 15, 2015. The revised Sewage Treatment Facility section will be submitted upon completion of the sewage lagoon expansion project.
- The QA/QC Plan, with cover letter from an accredited lab confirming acceptance, will be submitted to the NWB by July 15, 2015 as part of the updated and consolidated O&M Manual.

ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

- exp Services Inc. submitted an Amendment/Renewal Application on behalf of the Hamlet of Whale Cove on March 25, 2014. This application was deemed incomplete and a new application addressing outstanding information requirements was requested. GN-CGS submitted an Amendment/Renewal Application on behalf of the Hamlet of Whale Cove on January 16, 2015 that supersedes the previous application.

FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

- The 2014 AANDC Inspection Report requested the Inspector be contacted regarding the Monitoring Program sampling schedule. Refer to July 30, 2014 letter from Megan Lusty, GN-CGS, to Christine Wilson, AANDC, RE: 3BM-WHA0914 2014 Monitoring Program.


10/07/2014


10/07/2014


10/07/2014


10/07/2014


10/07/2014

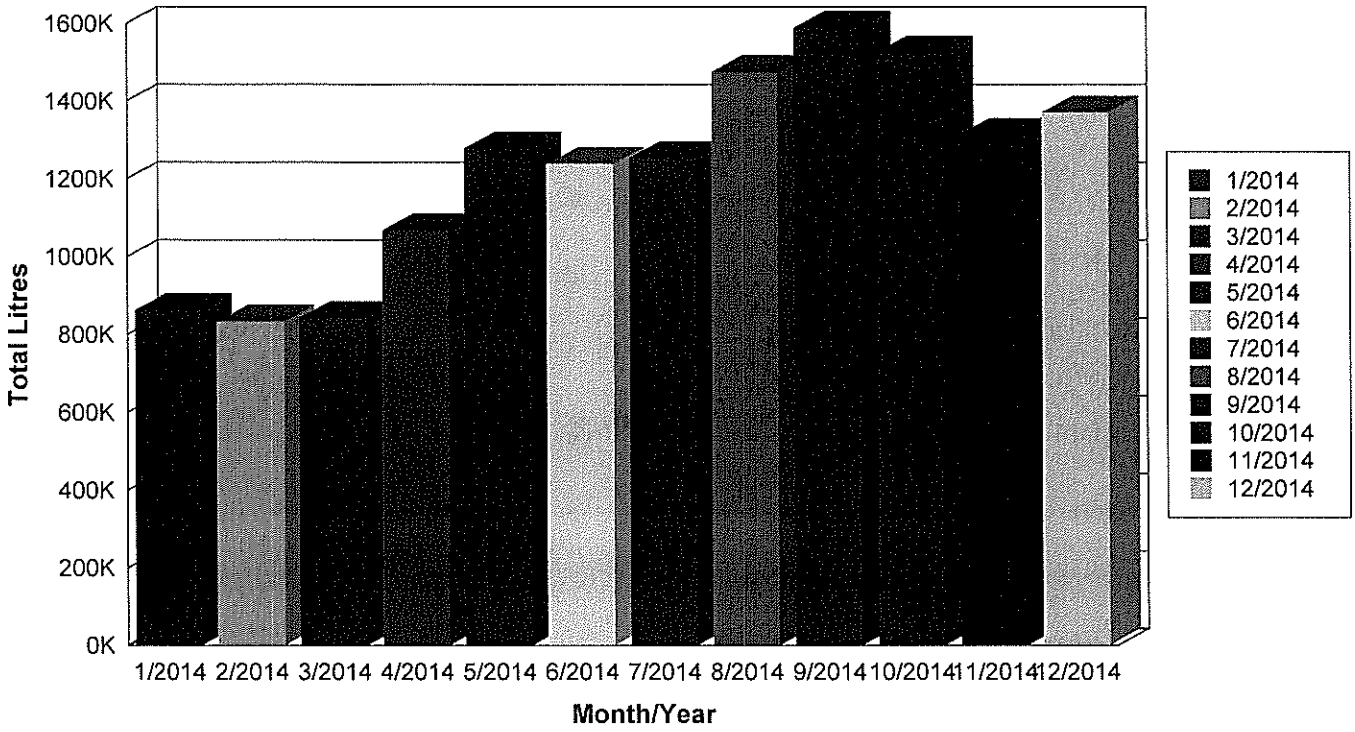

10/07/2014


10/07/2014


10/07/2014

Delivery Summary By Month and Year

Date Range From:Jan-01-2014 To: Dec-31-2014



Month / Year	Litres Delivered
January 2014	862,108.30
February 2014	833,413.30
March 2014	842,809.90
April 2014	1,067,933.40
May 2014	1,278,222.20
June 2014	1,237,986.80
July 2014	1,254,150.90
August 2014	1,475,274.50
September 2014	1,589,719.90
October 2014	1,525,304.30
November 2014	1,313,091.00
December 2014	1,371,152.50
Grand Total:	**14,651,167.00**

ᓄᓇᓕᖕᓂ ᑲᕙᒪᒃᑯᓂᑦᓗ ᐱᔨᑦᓯᕋᖅᑎᒃᑯᑦ
Nunalingni Kavamatkunnilu Pivikhaqautikkut
Department of Community and Government Services
Ministère des Services communautaires et gouvernementaux

July 30, 2014

Christine Wilson
Water Resources Officer, Field Operations Unit
Aboriginal Affairs and Northern Development Canada
Nunavut Regional Office
P.O. Box 100, Iqaluit, NU X0A 0H0
Email: christine.wilson@aandc.gc.ca
Phone: (867) 975-4296
Fax: (867) 979-6445

RE: 3BM-WHA0914 2014 Monitoring Program

Dear Ms. Wilson,

The Hamlet of Whale Cove is currently implementing the 2014 Monitoring Program for NWB Water Licence 3BM-WHA0914. Please accept this letter as response to the Water Licence Inspection form, Section 3, Bullet 3:

> "The Hamlet will implement the current monitoring program for 2014 as prescribed in this licence and provide each set of samples to the Inspector monthly starting with July and ending in September. This submission will be scheduled and in consultation with the Inspector. The Hamlet or the associated representative is required to contact the Inspector to discuss this schedule no later than July 30th, 2014 at the co-ordinates below."

Sampling took place at Monitoring Stations Numbers WHA-2, WHA-3 and WHA-4 on July 23, 2014. Please see the enclosed Sample Receipt Confirmation from the laboratory as verification these samples were taken.

The sampling schedule for the remainder of the summer was determined during discussions between myself and Hamlet personnel trained in wastewater sampling. Sampling will take place the week of August 11, 2014 and the week of September 8, 2014. The exact date during those weeks when sampling is done will be dependent on weather and personnel availability.

ᓄᓇᓕᖕᓂ ᑲᕙᒪᒃᑯᓐᓂᓗ ᐱᕕᒃᓴᖅᑎᒃᑯᑦ
Nunalingni Kavamatkunnilu Pivikhaqautikkut
Department of Community and Government Services
Ministère des Services communautaires et gouvernementaux

Sampling results for July, August, and September will be forwarded to you upon receipt. These results will also be included in the 2014 Annual Report.

The presence of water flow at Monitoring Station Numbers WHA-2 and WHA-4 will be checked on a weekly basis from the week beginning July 20, 2014 to the week beginning September 28, 2014. This log will be provided in the 2014 Annual Report, or upon request.

Please contact the undersigned if you have any questions or concerns regarding the 2014 Monitoring Program in Whale Cove.

Sincerely,

Megan Lusty, EIT
Municipal Planning Engineer-In-Training
Community and Government Services
Kivalliq Region, Government of Nunavut
P.O. Box 490, Rankin Inlet, NU X0C 0G0
Email: mlusty@gov.nu.ca
Phone: (867) 645-8176
Fax: (867) 645-8196

Enclosure: Sample Receipt Confirmation_Whale Cove

CC: Dorothy, Acting SAO, Hamlet of Whale Cove
Paul Kaludjak, SAO, Hamlet of Whale Cove

Sample Receipt Confirmation

3 Samples received at ALS in WINNIPEG

Job Reference #: WHALE COVE MONITORING PROGRAM
Project PO #: N/A
Legal Site Description: N/A
Quote #: Q35356
Lab Work Order #: L1492022
Estimated Completion Date: 8/5/2014

Date Sampled: 7/23/2014
Date Received: 7/24/2014
Sampled By: Simon E
Chain of Custody: N/A
Account Manager: Paul Nicolas
Estimated Sample Disposal Date: 9/4/2014

Sample Integrity Observations: No observations were identified for this work order submission.

Report Distribution:

Company Name: Hamlet of Whale Cove
Contact: PAUL KALUDJAK
Address: PO Box 120
Whale Cove,MB X0C 0J0
Phone: 867-896-9961
Fax: --
Email: sao@whalecove.ca
broy@gov.nu.ca
mlusty@gov.nu.ca
finance@whalecove.ca
Report Name: STANDARD
Digital Type: --
Digital Email: --
Distribution: **Hard Copy:** N **Email:** Y **Fax:** N

Invoice Distribution:

Acct Name: Hamlet of Whale Cove
Contact: ACCOUNTS PAYABLE
Address: PO Box 120,
Whale Cove, NU, X0C 0J0
Phone: 867-896-9961
Fax: --
Invoice Email: sao@whalecove.ca
Project #: N/A
Account #: W10623
Distribution: **Hard Copy:** Y **Email:** Y

Lab Sample ID	Client Sample ID	Date Sampled	Date Received	Sample Due Date	Priority Flag	Sample Type
L1492022-1	WHA-2	7/23/2014 9:00 AM	7/24/2014 12:20 PM	8/5/2014 5:00 PM		wastewater
L1492022-2	WHA-3	7/23/2014 9:40 AM	7/24/2014 12:20 PM	8/5/2014 5:00 PM		wastewater
L1492022-3	WHA-4	7/23/2014 9:30 AM	7/24/2014 12:20 PM	8/5/2014 5:00 PM		wastewater

Sample Receipt Confirmation

Analysis Requested:	Nunavut WW Group 1	Total Organic Carbon	Sample Handling and Disposal Fee
WHA-2	X	X	X
WHA-3	X	X	X
WHA-4	X	X	X

Sample Receipt Confirmation

Hold Time Exceedences: The following samples have exceeded recommended holding times prior to sample receipt.

Analysis Requested	Lab Sample ID	Recommended Hold Time	Date Sampled	Date Received
pH	L1492022-1, 2, 3	0.25 hours	7/23/2014	7/24/2014

Notice of Sub-contract Laboratory Service

Please be advised that the following tests will be subcontracted to the corresponding laboratory:

Oil and Grease, Total subcontracted to: ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Phenol (4AAP) subcontracted to: ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Total Organic Carbon subcontracted to: ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Please contact your Account Manager immediately should you have questions or concerns regarding this arrangement. Approval of this arrangement shall be implied unless otherwise notified by you.

ALS Group strives to deliver on-time results to our clients at all times. However, there are times when due to capacity issues or other unforeseen circumstances we are unable to meet our expected turnaround times. The information above is related to a recent workorder you have submitted to our laboratory. In the event that you have an inquiry, please refer to the Lab Work Order # L1492022 when calling your Account Manager.

ALS Group appreciates your business. Thank you for the opportunity to work with you.

10-312603

ALS Environmental

L1492022-COFC

ody / Analytical Request Form
Toll Free: 1 800 668 9878
www.alsglobal.com

L1492022

Page 1 of 1

Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: Hamlet of Whale Cove	Standard: ✓ Other (specify):	✓ Regular (Standard Turnaround Times - Business Days)
Contact: Paul Kaludjak	Select: PDF ✓ Excel Digital Fax ✓	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: PO Box 120, Whale Cove, NU X0C 0J0	Email 1: sao@whalecove.ca	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Email 2: mlusty@gov.nu.ca	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: Fax:	Email 3: finance@whalecove.ca	
Invoice To Same as Report ? (circle) (Yes) or No (if No, provide details)	**Client / Project Information**	**Analysis Request**
Copy of Invoice with Report? (circle) (Yes) or No	Job #: Whale Cove Monitoring Program	(Indicate Filtered or Preserved, F/P)
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only)	**ALS Contact:** Craig Riddell **Sampler:** Simon Enuapik	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	500mL BOD	1L Routine	250mL Metals	250mL Nutrients	250mL Phenols	125mL Bacteria	Oil + Grease 2x500mL	Number of Containers
	WHA-2	23-07-14	9:00	wastewater	✓	✓	P	P	P	P	P	8
	WHA-3	23-07-14	9:40	wastewater	✓	✓	P	P	P	P	P	8
	WHA-4	23-07-14	9:30	wastewater	✓	✓	P	P	P	P	P	8

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

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	23/07/14	10:00 AM	JC	07/24/14	12:10	5 °C				

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

Whale Cove Monitoring Stations and Sampling Parameters for License #3BM-WHA0914
Part D, Item 3: WHA-3 Effluent Quality Limits

			WHA-3		
Parameter	**Unit**	**Maximum Concentration**	**23-Jul-14**	**14-Aug-14**	**09-Sep-14**
BOD_5	mg/L	120	15.2	<6.0	12.9
Total Suspended Solids	mg/L	180	35.0	9.0	5.0
Fecal Coliforms	CFU/100 mL	1,000,000	200	2300	3800
Oil and Grease	mg/L	no visible sheen	<2.0	<2.0	2.9
pH	pH units	between 6 and 9	8.25	8.13	7.50

All samples taken at WHA-3 were below maximum concentration for the effluent quality limits.

Whale Cove Monitoring Stations and Sampling Parameters for License #3BM-WHA0914

			WHA-2				WHA-3				WHA-4			
Parameters	**Unit**	**Detection Limit**	**23-Jul-14**	**14-Aug-14**	**09-Sep-14**	**CCME Guideline[1]**	**23-Jul-14**	**14-Aug-14**	**09-Sep-14**	**CCME Guideline[1]**	**23-Jul-14**	**14-Aug-14**	**09-Sep-14**	**CCME Guideline[1]**
Ammonia Nitrogen	mg/L	0.1	1.35	2.54	4.36	1.54	4.7	9	14.8	1.54	0.69	2.48	1.21	1.54
BOD_5	mg/L	6	<6.0	<6.0	<6.0	N/G	15.2	<6.0	12.9	N/G	<6.0	<6.0	<6.0	N/G
Calcium	mg/L	0.1	88.7	90.1	44.3	N/G	28.6	28.9	27.4	N/G	50.7	46.3	82.4	N/G
Chloride	mg/L	0.5	90.7	105	88.2	120	85.3	106	85.7	120	89.6	89.2	114	120
Conductivity	umhos/cm	20	829	892	714	N/G	766	656	707	N/G	675	716	709	N/G
Fecal Coliforms	MPN/100mL	3	93	43	4	N/G	200	2300	3800	N/G	4	<3	750	N/G
Magnesium	mg/L	0.01	15.4	15.5	7.7	N/G	6.58	7.01	6.94	N/G	7.66	8.05	13.8	N/G
Nitrate-Nitrite	mg/L	0.071	<0.071	<0.071	1.56	N/G	0.968	<0.071	0.127	N/G	3.12	0.34	<0.071	N/G
Oil and Grease	mg/L	2	<2.0	<2.0	<2.0	N/G	<2.0	<2.0	2.9	N/G	<2.0	89.2	<2.0	N/G
pH	pH units	0.10	7.98	8.38	7.66	6.5-9	8.25	8.13	7.5	6.5-9	8.46	8.27	7.43	6.5-9
Potassium	mg/L	0.02	12.8	11.8	17.7	N/G	18.2	19.4	17.8	N/G	12.0	15.0	9.31	N/G
Sodium	mg/L	0.3	64.4	67	73.7	N/G	67.5	70.2	67.5	N/G	77.6	79.8	67.4	N/G
Sulphate	mg/L	0.5	77.6	54.3	3.73	N/G	22.7	53	26.8	N/G	2.82	23.7	52.8	N/G
Total Alkalinity	mg/L	20	207	238	236	N/G	105	136	170	N/G	180	189	169	N/G
Total Aluminum	mg/L	0.005	0.009	<0.020	0.0091	0.1	0.0516	0.128	0.328	0.1	0.0299	0.021	0.0111	0.1
Total Arsenic	mg/L	0.002	0.00245	0.0027	0.00513	0.005	0.00073	<0.0010	0.00092	0.005	0.00482	0.0045	0.00161	0.005
Total Cadmium	mg/L	0.00001	0.000028	<0.00020	0.000014	0.00009	<0.000010	0.00025	0.000058	0.00009	0.000011	<0.00020	0.000039	0.00009
Total Chromium	mg/L	0.001	<0.0010	<0.0020	<0.0010	N/G	<0.0010	<0.0020	<0.0010	N/G	<0.0010	<0.0020	<0.0010	N/G
Total Cobalt	mg/L	0.002	0.00152	0.00121	0.00065	N/G	0.00034	<0.00050	0.00049	N/G	0.00056	0.00057	0.00094	N/G
Total Copper	mg/L	0.002	0.00286	<0.0020	0.00199	0.004	0.0152	0.0209	0.0404	0.00234	0.0019	<0.0020	0.00262	0.0035
Total Hardness	mg/L	0.3	285	289	142	N/G	98.6	101	96.9	N/G	158	149	263	N/G
Total Iron	mg/L	0.1	1.56	1.9	0.26	0.3	<0.10	0.23	0.52	0.3	0.62	0.37	1.66	0.3
Total Lead	mg/L	0.00009	0.000408	<0.0010	<0.000090	0.007	<0.000090	<0.0010	0.000791	0.00312	<0000.90	<0.0010	0.000501	0.007
Total Manganese	mg/L	0.0003	0.430	0.523	0.109	N/G	0.0373	0.068	6.94	N/G	0.0671	0.0387	0.244	N/G
Total Nickel	mg/L	0.002	0.0066	0.0051	0.0025	0.15	<0.0020	0.0025	0.0026	0.09456	0.0029	0.0029	0.0047	0.135
Total Phenols	mg/L	0.001	0.0011	0.0011	<0.0010	0.004	<0.0010	<0.0010	0.0014	0.004	<0.0010	<0.0010	<0.0010	0.004
Total Suspended Solids	mg/L	5	9.0	12.0	5.0	25	35.0	9.0	5.0	25	10.0	9.0	7.0	25
Total Zinc	mg/L	0.002	0.0162	<0.020	0.0044	0.03	0.0102	0.023	0.0523	0.03	0.0023	<0.020	0.0361	0.03

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

N/G - No Guideline

Hamlet of Whale Cove
ATTN: PAUL KALUDJAK
PO Box 120
Whale Cove MB X0C 0J0

Date Received: 24-JUL-14
Report Date: 06-AUG-14 08:11 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: L1492022

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

Chantal Bouchard
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1492022-1 WHA-2							
Sampled By: Simon E on 23-JUL-14 @ 09:00							
Matrix: wastewater							
Miscellaneous Parameters							
Total Organic Carbon	23.0		1.0	mg/L	31-JUL-14	31-JUL-14	R2905936
Nunavut WW Group 1							
Alkalinity							
Alkalinity, Total (as CaCO3)	207		20	mg/L		28-JUL-14	R2903222
Bicarbonate (HCO3)	253		24	mg/L		28-JUL-14	R2903222
Carbonate (CO3)	<12		12	mg/L		28-JUL-14	R2903222
Hydroxide (OH)	<6.8		6.8	mg/L		28-JUL-14	R2903222
Ammonia by colour							
Ammonia, Total (as N)	1.35	DLA	0.10	mg/L		25-JUL-14	R2899368
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<6.0		6.0	mg/L		30-JUL-14	R2903636
Carbonaceous BOD							
BOD Carbonaceous	<6.0		6.0	mg/L		30-JUL-14	R2903636
Chloride by Ion Chromatography							
Chloride	90.7		0.50	mg/L		25-JUL-14	R2903526
Conductivity							
Conductivity	829		20	umhos/cm		28-JUL-14	R2903222
Fecal Coliform							
Fecal Coliforms	93		3	MPN/100mL		28-JUL-14	R2900631
Hardness Calculated							
Hardness (as CaCO3)	285		0.30	mg/L		06-AUG-14	
Mercury Total							
Mercury (Hg)-Total	0.000032		0.000020	mg/L	28-JUL-14	28-JUL-14	R2901935
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		25-JUL-14	R2903526
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		31-JUL-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		25-JUL-14	R2903526
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	29-JUL-14	29-JUL-14	R2904329
Phenol (4AAP)							
Phenols (4AAP)	0.0011		0.0010	mg/L	29-JUL-14	29-JUL-14	R2901191
Phosphorus, Total							
Phosphorus (P)-Total	0.095		0.010	mg/L		30-JUL-14	R2902453
Sulfate by Ion Chromatography							
Sulfate	77.6		0.50	mg/L		25-JUL-14	R2903526
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0090		0.0050	mg/L	05-AUG-14	05-AUG-14	R2908540
Arsenic (As)-Total	0.00245		0.00020	mg/L	05-AUG-14	05-AUG-14	R2908540
Cadmium (Cd)-Total	0.000028		0.000010	mg/L	05-AUG-14	05-AUG-14	R2908540
Calcium (Ca)-Total	88.7		0.10	mg/L	05-AUG-14	05-AUG-14	R2908540
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	05-AUG-14	05-AUG-14	R2908540
Cobalt (Co)-Total	0.00152		0.00020	mg/L	05-AUG-14	05-AUG-14	R2908540
Copper (Cu)-Total	0.00286		0.00020	mg/L	05-AUG-14	05-AUG-14	R2908540
Iron (Fe)-Total	1.56		0.10	mg/L	05-AUG-14	05-AUG-14	R2908540
Lead (Pb)-Total	0.000408		0.000090	mg/L	05-AUG-14	05-AUG-14	R2908540
Magnesium (Mg)-Total	15.4		0.010	mg/L	05-AUG-14	05-AUG-14	R2908540
Manganese (Mn)-Total	0.430		0.00030	mg/L	05-AUG-14	05-AUG-14	R2908540
Nickel (Ni)-Total	0.0066		0.0020	mg/L	05-AUG-14	05-AUG-14	R2908540
Potassium (K)-Total	12.8		0.020	mg/L	05-AUG-14	05-AUG-14	R2908540
Sodium (Na)-Total	64.4		0.030	mg/L	05-AUG-14	05-AUG-14	R2908540

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1492022-1 WHA-2							
Sampled By: Simon E on 23-JUL-14 @ 09:00							
Matrix: wastewater							
Total Metals by ICP-MS							
Zinc (Zn)-Total	0.0162		0.0020	mg/L	05-AUG-14	05-AUG-14	R2908540
Total Suspended Solids							
Total Suspended Solids	9.0		5.0	mg/L		25-JUL-14	R2899691
pH							
pH	7.98		0.10	pH units		28-JUL-14	R2903222
L1492022-2 WHA-3							
Sampled By: Simon E on 23-JUL-14 @ 09:40							
Matrix: wastewater							
Miscellaneous Parameters							
Total Organic Carbon	31.7		1.0	mg/L	31-JUL-14	31-JUL-14	R2905936
Nunavut WW Group 1							
Alkalinity							
Alkalinity, Total (as CaCO3)	105		20	mg/L		28-JUL-14	R2903222
Bicarbonate (HCO3)	128		24	mg/L		28-JUL-14	R2903222
Carbonate (CO3)	<12		12	mg/L		28-JUL-14	R2903222
Hydroxide (OH)	<6.8		6.8	mg/L		28-JUL-14	R2903222
Ammonia by colour							
Ammonia, Total (as N)	4.7	DLA	1.0	mg/L		28-JUL-14	R2900132
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	15.2		6.0	mg/L		30-JUL-14	R2903636
Carbonaceous BOD							
BOD Carbonaceous	8.4		6.0	mg/L		30-JUL-14	R2903636
Chloride by Ion Chromatography							
Chloride	85.3		0.50	mg/L		25-JUL-14	R2903526
Conductivity							
Conductivity	766		20	umhos/cm		28-JUL-14	R2903222
Fecal Coliform							
Fecal Coliforms	200		3	MPN/100mL		28-JUL-14	R2900631
Hardness Calculated							
Hardness (as CaCO3)	98.6		0.30	mg/L		06-AUG-14	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	28-JUL-14	28-JUL-14	R2901935
Nitrate as N by Ion Chromatography							
Nitrate-N	0.423		0.050	mg/L		25-JUL-14	R2903526
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.968		0.071	mg/L		31-JUL-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	0.545		0.050	mg/L		25-JUL-14	R2903526
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	29-JUL-14	29-JUL-14	R2904329
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L	29-JUL-14	29-JUL-14	R2901191
Phosphorus, Total							
Phosphorus (P)-Total	4.92		0.010	mg/L		30-JUL-14	R2902453
Sulfate by Ion Chromatography							
Sulfate	22.7		0.50	mg/L		25-JUL-14	R2903526
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0516		0.0050	mg/L	05-AUG-14	05-AUG-14	R2908540
Arsenic (As)-Total	0.00073		0.00020	mg/L	05-AUG-14	05-AUG-14	R2908540
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	05-AUG-14	05-AUG-14	R2908540
Calcium (Ca)-Total	28.6		0.10	mg/L	05-AUG-14	05-AUG-14	R2908540
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	05-AUG-14	05-AUG-14	R2908540

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1492022-2 WHA-3							
Sampled By: Simon E on 23-JUL-14 @ 09:40							
Matrix: wastewater							
Total Metals by ICP-MS							
Cobalt (Co)-Total	0.00034		0.00020	mg/L	05-AUG-14	05-AUG-14	R2908540
Copper (Cu)-Total	0.0152		0.00020	mg/L	05-AUG-14	05-AUG-14	R2908540
Iron (Fe)-Total	<0.10		0.10	mg/L	05-AUG-14	05-AUG-14	R2908540
Lead (Pb)-Total	<0.000090		0.000090	mg/L	05-AUG-14	05-AUG-14	R2908540
Magnesium (Mg)-Total	6.58		0.010	mg/L	05-AUG-14	05-AUG-14	R2908540
Manganese (Mn)-Total	0.0373		0.00030	mg/L	05-AUG-14	05-AUG-14	R2908540
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	05-AUG-14	05-AUG-14	R2908540
Potassium (K)-Total	18.2		0.020	mg/L	05-AUG-14	05-AUG-14	R2908540
Sodium (Na)-Total	67.5		0.030	mg/L	05-AUG-14	05-AUG-14	R2908540
Zinc (Zn)-Total	0.0102		0.0020	mg/L	05-AUG-14	05-AUG-14	R2908540
Total Suspended Solids							
Total Suspended Solids	35.0		5.0	mg/L		25-JUL-14	R2899691
pH							
pH	8.25		0.10	pH units		28-JUL-14	R2903222
L1492022-3 WHA-4							
Sampled By: Simon E on 23-JUL-14 @ 09:30							
Matrix: wastewater							
Miscellaneous Parameters							
Total Organic Carbon	20.2		1.0	mg/L	31-JUL-14	31-JUL-14	R2905936
Nunavut WW Group 1							
Alkalinity							
Alkalinity, Total (as CaCO3)	180		20	mg/L		28-JUL-14	R2903222
Bicarbonate (HCO3)	213		24	mg/L		28-JUL-14	R2903222
Carbonate (CO3)	<12		12	mg/L		28-JUL-14	R2903222
Hydroxide (OH)	<6.8		6.8	mg/L		28-JUL-14	R2903222
Ammonia by colour							
Ammonia, Total (as N)	0.69	DLA	0.10	mg/L		25-JUL-14	R2899368
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<6.0		6.0	mg/L		30-JUL-14	R2903636
Carbonaceous BOD							
BOD Carbonaceous	<6.0		6.0	mg/L		30-JUL-14	R2903636
Chloride by Ion Chromatography							
Chloride	89.6		0.50	mg/L		25-JUL-14	R2903526
Conductivity							
Conductivity	675		20	umhos/cm		28-JUL-14	R2903222
Fecal Coliform							
Fecal Coliforms	4		3	MPN/100mL		28-JUL-14	R2900631
Hardness Calculated							
Hardness (as CaCO3)	158		0.30	mg/L		06-AUG-14	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	28-JUL-14	28-JUL-14	R2901935
Nitrate as N by Ion Chromatography							
Nitrate-N	3.02		0.050	mg/L		25-JUL-14	R2903526
Nitrate+Nitrite							
Nitrate and Nitrite as N	3.12		0.071	mg/L		31-JUL-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	0.098		0.050	mg/L		25-JUL-14	R2903526
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	29-JUL-14	29-JUL-14	R2904329
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L	29-JUL-14	29-JUL-14	R2901191
Phosphorus, Total							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1492022-3 WHA-4							
Sampled By: Simon E on 23-JUL-14 @ 09:30							
Matrix: wastewater							
Phosphorus, Total							
Phosphorus (P)-Total	3.18		0.010	mg/L		30-JUL-14	R2902453
Sulfate by Ion Chromatography							
Sulfate	2.82		0.50	mg/L		25-JUL-14	R2903526
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0299		0.0050	mg/L	05-AUG-14	05-AUG-14	R2908540
Arsenic (As)-Total	0.00482		0.00020	mg/L	05-AUG-14	05-AUG-14	R2908540
Cadmium (Cd)-Total	0.000011		0.000010	mg/L	05-AUG-14	05-AUG-14	R2908540
Calcium (Ca)-Total	50.7		0.10	mg/L	05-AUG-14	05-AUG-14	R2908540
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	05-AUG-14	05-AUG-14	R2908540
Cobalt (Co)-Total	0.00056		0.00020	mg/L	05-AUG-14	05-AUG-14	R2908540
Copper (Cu)-Total	0.00190		0.00020	mg/L	05-AUG-14	05-AUG-14	R2908540
Iron (Fe)-Total	0.62		0.10	mg/L	05-AUG-14	05-AUG-14	R2908540
Lead (Pb)-Total	<0.000090		0.000090	mg/L	05-AUG-14	05-AUG-14	R2908540
Magnesium (Mg)-Total	7.66		0.010	mg/L	05-AUG-14	05-AUG-14	R2908540
Manganese (Mn)-Total	0.0671		0.00030	mg/L	05-AUG-14	05-AUG-14	R2908540
Nickel (Ni)-Total	0.0029		0.0020	mg/L	05-AUG-14	05-AUG-14	R2908540
Potassium (K)-Total	12.0		0.020	mg/L	05-AUG-14	05-AUG-14	R2908540
Sodium (Na)-Total	77.6		0.030	mg/L	05-AUG-14	05-AUG-14	R2908540
Zinc (Zn)-Total	0.0023		0.0020	mg/L	05-AUG-14	05-AUG-14	R2908540
Total Suspended Solids							
Total Suspended Solids	10.0		5.0	mg/L		25-JUL-14	R2899691
pH							
pH	8.46		0.10	pH units		28-JUL-14	R2903222

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
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.

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
FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

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

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

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

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

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

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

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

NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (Modified)

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

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

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

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

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

P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SO4-IC-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			
TOC-WT	Water	Total Organic Carbon	APHA 5310B
Sample is injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic cabon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.			

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

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

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

Chain of Custody Numbers:

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.

10-312603

ALS Environmental

L1492022-COFC

ody / Analytical Request Form
Toll Free: 1 800 668 9878
www.alsglobal.com

L1492022

Page 1 of 1

Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: Hamlet of Whale Cove	Standard: ✓ Other (specify):	✓ Regular (Standard Turnaround Times - Business Days)
Contact: Paul Kaludjak	Select: PDF ✓ Excel Digital Fax ✓	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: PO Box 120, Whale Cove, NU X0C 0J0	Email 1: sao@whalecove.ca	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Email 2: mlusty@gov.nu.ca	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: Fax:	Email 3: finance@whalecove.ca	
Invoice To Same as Report ? (circle) (Yes) or No (if No, provide details)	**Client / Project Information**	**Analysis Request**
Copy of Invoice with Report? (circle) (Yes) or No	Job #: Whale Cove Monitoring Program	(Indicate Filtered or Preserved, F/P)
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only)	**ALS Contact:** Craig Riddell **Sampler:** Simon Enuapik	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	500mL BOD	1L Routine	250mL Metals	250mL Nutrients	250mL Phenols	125mL Bacteria	Oil + Grease 2x500mL	Number of Containers
	WHA-2	23-07-14	9:00	wastewater	✓	✓	P	P	P	P	P	8
	WHA-3	23-07-14	9:40	wastewater	✓	✓	P	P	P	P	P	8
	WHA-4	23-07-14	9:30	wastewater	✓	✓	P	P	P	P	P	8

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

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	23/07/14	10:00 AM	JC	07/24/14	12:10	5 °C				

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

Hamlet of Whale Cove
ATTN: PAUL KALUDJAK
PO Box 120
Whale Cove MB X0C 0J0

Date Received: 14-AUG-14
Report Date: 27-AUG-14 13:18 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: L1502456

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

Judy Dalmaijer
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1502456-1 WHA-2							
Sampled By: Michael on 13-AUG-14 @ 08:55							
Matrix: Sewage/Waste Water							
Miscellaneous Parameters							
Ammonia, Total (as N)	2.54	DLA	0.10	mg/L		15-AUG-14	R2922108
Biochemical Oxygen Demand	<6.0		6.0	mg/L		14-AUG-14	R2923066
BOD Carbonaceous	<6.0		6.0	mg/L		14-AUG-14	R2923066
Fecal Coliforms	43		3	MPN/100mL		18-AUG-14	R2923943
Oil and Grease, Total	<2.0		2.0	mg/L	18-AUG-14	18-AUG-14	R2924257
Phenols (4AAP)	0.0011		0.0010	mg/L	18-AUG-14	18-AUG-14	R2923043
Phosphorus (P)-Total	0.106		0.010	mg/L		20-AUG-14	R2924187
Total Organic Carbon	15.1		1.0	mg/L		21-AUG-14	R2926233
Total Suspended Solids	12.0		5.0	mg/L		18-AUG-14	R2923809
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	238		20	mg/L		16-AUG-14	R2923304
Bicarbonate (HCO3)	282		24	mg/L		16-AUG-14	R2923304
Carbonate (CO3)	<12		12	mg/L		16-AUG-14	R2923304
Hydroxide (OH)	<6.8		6.8	mg/L		16-AUG-14	R2923304
Chloride by Ion Chromatography							
Chloride	105		0.50	mg/L		22-AUG-14	R2929232
Conductivity							
Conductivity	892		20	umhos/cm		16-AUG-14	R2923304
Hardness Calculated							
Hardness (as CaCO3)	289		0.30	mg/L		21-AUG-14	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050	HTD	0.050	mg/L		22-AUG-14	R2929232
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		27-AUG-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050	HTD	0.050	mg/L		22-AUG-14	R2929232
Sulfate by Ion Chromatography							
Sulfate	54.3		0.50	mg/L		22-AUG-14	R2929232
TDS calculated							
TDS (Calculated)	487		5.0	mg/L		27-AUG-14	
Total Metals by ICP-MS							
Aluminum (Al)-Total	<0.020		0.020	mg/L	20-AUG-14	20-AUG-14	R2924548
Antimony (Sb)-Total	0.0019		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Arsenic (As)-Total	0.0027		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Barium (Ba)-Total	0.0322		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Boron (B)-Total	0.377		0.030	mg/L	20-AUG-14	20-AUG-14	R2924548
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	20-AUG-14	20-AUG-14	R2924548
Calcium (Ca)-Total	90.1		0.20	mg/L	20-AUG-14	20-AUG-14	R2924548
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Cobalt (Co)-Total	0.00121		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Copper (Cu)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Iron (Fe)-Total	1.90		0.10	mg/L	20-AUG-14	20-AUG-14	R2924548
Lead (Pb)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Lithium (Li)-Total	0.0095		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Magnesium (Mg)-Total	15.5		0.050	mg/L	20-AUG-14	20-AUG-14	R2924548
Manganese (Mn)-Total	0.523		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Molybdenum (Mo)-Total	0.0340		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1502456-1 WHA-2							
Sampled By: Michael on 13-AUG-14 @ 08:55							
Matrix: Sewage/Waste Water							
Total Metals by ICP-MS							
Nickel (Ni)-Total	0.0051		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Phosphorus (P)-Total	<0.50		0.50	mg/L	20-AUG-14	20-AUG-14	R2924548
Potassium (K)-Total	11.8		0.10	mg/L	20-AUG-14	20-AUG-14	R2924548
Rubidium (Rb)-Total	0.00927		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Selenium (Se)-Total	<0.0050		0.0050	mg/L	20-AUG-14	20-AUG-14	R2924548
Silicon (Si)-Total	2.63		0.30	mg/L	20-AUG-14	20-AUG-14	R2924548
Silver (Ag)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Sodium (Na)-Total	67.0		0.050	mg/L	20-AUG-14	20-AUG-14	R2924548
Strontium (Sr)-Total	0.672		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	20-AUG-14	20-AUG-14	R2924548
Thorium (Th)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Tin (Sn)-Total	<0.00060		0.00060	mg/L	20-AUG-14	20-AUG-14	R2924548
Titanium (Ti)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Tungsten (W)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Uranium (U)-Total	0.00089		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Vanadium (V)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Zinc (Zn)-Total	<0.020		0.020	mg/L	20-AUG-14	20-AUG-14	R2924548
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
pH							
pH	8.38		0.10	pH units		16-AUG-14	R2923304
L1502456-2 WHA-3							
Sampled By: Michael on 13-AUG-14 @ 09:20							
Matrix: Sewage/Waste Water							
Miscellaneous Parameters							
Ammonia, Total (as N)	9.0	DLA	1.0	mg/L		18-AUG-14	R2922986
Biochemical Oxygen Demand	<6.0		6.0	mg/L		15-AUG-14	R2923957
BOD Carbonaceous	<6.0		6.0	mg/L		15-AUG-14	R2923957
Fecal Coliforms	2300		3	MPN/100mL		18-AUG-14	R2923943
Oil and Grease, Total	<2.0		2.0	mg/L	18-AUG-14	18-AUG-14	R2924257
Phenols (4AAP)	<0.0010		0.0010	mg/L	18-AUG-14	18-AUG-14	R2923043
Phosphorus (P)-Total	5.54	DLA	0.020	mg/L		20-AUG-14	R2924187
Total Organic Carbon	37.9		1.0	mg/L		21-AUG-14	R2926233
Total Suspended Solids	9.0		5.0	mg/L		18-AUG-14	R2923809
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	136		20	mg/L		16-AUG-14	R2923304
Bicarbonate (HCO3)	166		24	mg/L		16-AUG-14	R2923304
Carbonate (CO3)	<12		12	mg/L		16-AUG-14	R2923304
Hydroxide (OH)	<6.8		6.8	mg/L		16-AUG-14	R2923304
Chloride by Ion Chromatography							
Chloride	106		0.50	mg/L		14-AUG-14	R2923303
Conductivity							
Conductivity	656		20	umhos/cm		16-AUG-14	R2923304
Hardness Calculated							
Hardness (as CaCO3)	101		0.30	mg/L		21-AUG-14	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		14-AUG-14	R2923303
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		20-AUG-14	
Nitrite as N by Ion Chromatography							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1502456-2 WHA-3							
Sampled By: Michael on 13-AUG-14 @ 09:20							
Matrix: Sewage/Waste Water							
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		14-AUG-14	R2923303
Sulfate by Ion Chromatography							
Sulfate	53.0		0.50	mg/L		14-AUG-14	R2923303
TDS calculated							
TDS (Calculated)	367		5.0	mg/L		21-AUG-14	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.128		0.020	mg/L	20-AUG-14	20-AUG-14	R2924548
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Arsenic (As)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Barium (Ba)-Total	0.00364		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Boron (B)-Total	0.177		0.030	mg/L	20-AUG-14	20-AUG-14	R2924548
Cadmium (Cd)-Total	0.00025		0.00020	mg/L	20-AUG-14	20-AUG-14	R2924548
Calcium (Ca)-Total	28.9		0.20	mg/L	20-AUG-14	20-AUG-14	R2924548
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Copper (Cu)-Total	0.0209		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Iron (Fe)-Total	0.23		0.10	mg/L	20-AUG-14	20-AUG-14	R2924548
Lead (Pb)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Lithium (Li)-Total	0.0037		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Magnesium (Mg)-Total	7.01		0.050	mg/L	20-AUG-14	20-AUG-14	R2924548
Manganese (Mn)-Total	0.0680		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Molybdenum (Mo)-Total	0.00089		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Nickel (Ni)-Total	0.0025		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Phosphorus (P)-Total	5.96		0.50	mg/L	20-AUG-14	20-AUG-14	R2924548
Potassium (K)-Total	19.4		0.10	mg/L	20-AUG-14	20-AUG-14	R2924548
Rubidium (Rb)-Total	0.0214		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Selenium (Se)-Total	<0.0050		0.0050	mg/L	20-AUG-14	20-AUG-14	R2924548
Silicon (Si)-Total	1.67		0.30	mg/L	20-AUG-14	20-AUG-14	R2924548
Silver (Ag)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Sodium (Na)-Total	70.2		0.050	mg/L	20-AUG-14	20-AUG-14	R2924548
Strontium (Sr)-Total	0.125		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	20-AUG-14	20-AUG-14	R2924548
Thorium (Th)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Tin (Sn)-Total	0.00064		0.00060	mg/L	20-AUG-14	20-AUG-14	R2924548
Titanium (Ti)-Total	0.0092		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Tungsten (W)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Uranium (U)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Vanadium (V)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Zinc (Zn)-Total	0.023		0.020	mg/L	20-AUG-14	20-AUG-14	R2924548
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
pH							
pH	8.13		0.10	pH units		16-AUG-14	R2923304
L1502456-3 WHA-4							
Sampled By: Michael on 13-AUG-14 @ 09:40							
Matrix: Sewage/Waste Water							
Miscellaneous Parameters							
Ammonia, Total (as N)	2.48	DLA	0.10	mg/L		15-AUG-14	R2922108

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1502456-3 WHA-4							
Sampled By: Michael on 13-AUG-14 @ 09:40							
Matrix: Sewage/Waste Water							
Biochemical Oxygen Demand	<6.0		6.0	mg/L		15-AUG-14	R2923957
BOD Carbonaceous	<6.0		6.0	mg/L		15-AUG-14	R2923957
Fecal Coliforms	<3		3	MPN/100mL		18-AUG-14	R2923943
Oil and Grease, Total	<2.0		2.0	mg/L	18-AUG-14	18-AUG-14	R2924257
Phenols (4AAP)	<0.0010		0.0010	mg/L	18-AUG-14	18-AUG-14	R2923043
Phosphorus (P)-Total	3.67		0.010	mg/L		20-AUG-14	R2924187
Total Organic Carbon	18.8		1.0	mg/L		21-AUG-14	R2926233
Total Suspended Solids	9.0		5.0	mg/L		18-AUG-14	R2923809
Routine Soluble + Metal scan							
Alkalinity							
Alkalinity, Total (as CaCO3)	189		20	mg/L		16-AUG-14	R2923304
Bicarbonate (HCO3)	230		24	mg/L		16-AUG-14	R2923304
Carbonate (CO3)	<12		12	mg/L		16-AUG-14	R2923304
Hydroxide (OH)	<6.8		6.8	mg/L		16-AUG-14	R2923304
Chloride by Ion Chromatography							
Chloride	89.2		0.50	mg/L		14-AUG-14	R2923303
Conductivity							
Conductivity	716		20	umhos/cm		16-AUG-14	R2923304
Hardness Calculated							
Hardness (as CaCO3)	149		0.30	mg/L		21-AUG-14	
Nitrate as N by Ion Chromatography							
Nitrate-N	0.243		0.050	mg/L		14-AUG-14	R2923303
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.340		0.071	mg/L		20-AUG-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	0.097		0.050	mg/L		14-AUG-14	R2923303
Sulfate by Ion Chromatography							
Sulfate	23.7		0.50	mg/L		14-AUG-14	R2923303
TDS calculated							
TDS (Calculated)	377		5.0	mg/L		21-AUG-14	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.021		0.020	mg/L	20-AUG-14	20-AUG-14	R2924548
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Arsenic (As)-Total	0.0045		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Barium (Ba)-Total	0.00852		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Boron (B)-Total	0.166		0.030	mg/L	20-AUG-14	20-AUG-14	R2924548
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	20-AUG-14	20-AUG-14	R2924548
Calcium (Ca)-Total	46.3		0.20	mg/L	20-AUG-14	20-AUG-14	R2924548
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Cobalt (Co)-Total	0.00057		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Copper (Cu)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Iron (Fe)-Total	0.37		0.10	mg/L	20-AUG-14	20-AUG-14	R2924548
Lead (Pb)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Lithium (Li)-Total	0.0047		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Magnesium (Mg)-Total	8.05		0.050	mg/L	20-AUG-14	20-AUG-14	R2924548
Manganese (Mn)-Total	0.0387		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Molybdenum (Mo)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Nickel (Ni)-Total	0.0029		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Phosphorus (P)-Total	3.81		0.50	mg/L	20-AUG-14	20-AUG-14	R2924548

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1502456-3 WHA-4							
Sampled By: Michael on 13-AUG-14 @ 09:40							
Matrix: Sewage/Waste Water							
Total Metals by ICP-MS							
Potassium (K)-Total	15.0		0.10	mg/L	20-AUG-14	20-AUG-14	R2924548
Rubidium (Rb)-Total	0.0117		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Selenium (Se)-Total	<0.0050		0.0050	mg/L	20-AUG-14	20-AUG-14	R2924548
Silicon (Si)-Total	2.81		0.30	mg/L	20-AUG-14	20-AUG-14	R2924548
Silver (Ag)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Sodium (Na)-Total	79.8		0.050	mg/L	20-AUG-14	20-AUG-14	R2924548
Strontium (Sr)-Total	0.241		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	20-AUG-14	20-AUG-14	R2924548
Thorium (Th)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Tin (Sn)-Total	<0.00060		0.00060	mg/L	20-AUG-14	20-AUG-14	R2924548
Titanium (Ti)-Total	0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
Tungsten (W)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Uranium (U)-Total	<0.00050		0.00050	mg/L	20-AUG-14	20-AUG-14	R2924548
Vanadium (V)-Total	<0.0020		0.0020	mg/L	20-AUG-14	20-AUG-14	R2924548
Zinc (Zn)-Total	<0.020		0.020	mg/L	20-AUG-14	20-AUG-14	R2924548
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	20-AUG-14	20-AUG-14	R2924548
pH							
pH	8.27		0.10	pH units		16-AUG-14	R2923304

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
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.			
C-TOT-ORG-WP	Water	Total Organic Carbon	APHA 5310 B-INSTRUMENTAL-WP
This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide. The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC. TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.			
CL-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
ETL-SOLIDS-CALC-WP	Water	TDS calculated	CALCULATION
FC-MPN-WP	Water	Fecal Coliform	APHA 9221E
The Most Probable Number (MPN) method is based on the Multiple Tube Fermentation technique. The results of examination of replicate tubes and dilutions of a sample are reported after confirmations specific to total coliform, fecal coliform and E. coli are performed. Results are reported in MPN/100 mL for water and MPN/gram for food and solid samples.			
IONBALANCE-CALC-WP	Water	Ion Balance Calculation	APHA 1030E
MET-T-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-T
This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
NO2-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
OGG-TOT-WT	Water	Oil and Grease, Total	APHA 5520 B
Sample is extracted with hexane, extract is then evaporated and the residue is weighed to determine total oil and grease.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SO4-IC-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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

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

10- 308403

L1502456-COFC

ALS Environmental

...y / Analytical Request Form
...ll Free: 1 800 668 9878
...w.alsglobal.com

L1502456

Page ___ of ___

Report To
Company: Hamlet of Whale-Cove
Contact: Paul Kaludjak
Address: PO Box 120 Whale-Cove NU X0C-0J0
Phone:
Fax:

Report Format / Distribution
Standard: ✓ Other (specify):
Select: PDF ✓ Excel Digital Fax ✓
Email 1: sao@whalecove.ca
Email 2: mlusty@gov.nu.ca

Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
✓ Regular (Standard Turnaround Times - Business Days)
Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To
Same as Report ? (circle) Yes or No (if No, provide details)
Copy of Invoice with Report? (circle) Yes or No
Company:
Contact:
Address:
Phone:
Fax:

Client / Project Information
Job #: Whale-Cove monitoring program
PO / AFE:
LSD:
Quote #:

Lab Work Order # (lab use only)

ALS Contact: Craig Riddell
Sampler: Michael Angutetuar

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

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	500ml BOD	1L Routine	250ml metals	250ml Nutrients	250ml Phenols	125ml Bacteria	2x500ml Oil Grease						Number of Containers
	WHA-2	13-08-14	8:55		✓	✓	P	P	P	P	P						
	WHA-3	13-08-14	9:20		✓	✓	P	P	P	P	P						
	WHA-4	13-08-14	9:40		✓	✓	P	P	P	P	P						

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

PD 14/8/14 12:05 7.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date: 13-08-14	Time: 10:00 Am	Received by:	Date:	Time:	Temperature: °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

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

Hamlet of Whale Cove
ATTN: PAUL KALUDJAK
PO Box 120
Whale Cove NU X0C 0J0

Date Received: 09-SEP-14
Report Date: 18-SEP-14 12:33 (MT)
Version: FINAL

Client Phone: 867-896-9961

Certificate of Analysis

Lab Work Order #: L1514840

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

Gail Hill
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1514840-1 WHA 2							
Sampled By: CLIENT on 09-SEP-14 @ 09:35							
Matrix: wastewater							
Nunavut WW Group 1							
Alkalinity							
Alkalinity, Total (as CaCO3)	236		20	mg/L		16-SEP-14	R2949560
Bicarbonate (HCO3)	288		24	mg/L		16-SEP-14	R2949560
Carbonate (CO3)	<12		12	mg/L		16-SEP-14	R2949560
Hydroxide (OH)	<6.8		6.8	mg/L		16-SEP-14	R2949560
Ammonia by colour							
Ammonia, Total (as N)	4.36	DLA	0.10	mg/L		11-SEP-14	R2945313
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<6.0		6.0	mg/L		10-SEP-14	R2947769
Carbonaceous BOD							
BOD Carbonaceous	<6.0		6.0	mg/L		10-SEP-14	R2947769
Chloride by Ion Chromatography							
Chloride	88.2		0.50	mg/L		09-SEP-14	R2943281
Conductivity							
Conductivity	714		20	umhos/cm		16-SEP-14	R2949560
Fecal Coliform							
Fecal Coliforms	4		3	MPN/100mL		13-SEP-14	R2947071
Hardness Calculated							
Hardness (as CaCO3)	142		0.30	mg/L		13-SEP-14	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	11-SEP-14	11-SEP-14	R2945829
Nitrate as N by Ion Chromatography							
Nitrate-N	1.56		0.050	mg/L		09-SEP-14	R2943281
Nitrate+Nitrite							
Nitrate and Nitrite as N	1.56		0.071	mg/L		10-SEP-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		09-SEP-14	R2943281
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	12-SEP-14	12-SEP-14	R2950539
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L	15-SEP-14	15-SEP-14	R2948416
Phosphorus, Total							
Phosphorus (P)-Total	3.39		0.010	mg/L		11-SEP-14	R2944633
Sulfate by Ion Chromatography							
Sulfate	3.73		0.50	mg/L		09-SEP-14	R2943281
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0091		0.0050	mg/L	11-SEP-14	12-SEP-14	R2946206
Arsenic (As)-Total	0.00513		0.00020	mg/L	11-SEP-14	12-SEP-14	R2946206
Cadmium (Cd)-Total	0.000014		0.000010	mg/L	11-SEP-14	12-SEP-14	R2946206
Calcium (Ca)-Total	44.3		0.10	mg/L	11-SEP-14	12-SEP-14	R2946206
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	11-SEP-14	12-SEP-14	R2946206
Cobalt (Co)-Total	0.00065		0.00020	mg/L	11-SEP-14	12-SEP-14	R2946206
Copper (Cu)-Total	0.00199		0.00020	mg/L	11-SEP-14	12-SEP-14	R2946206
Iron (Fe)-Total	0.26		0.10	mg/L	11-SEP-14	12-SEP-14	R2946206
Lead (Pb)-Total	<0.000090		0.000090	mg/L	11-SEP-14	12-SEP-14	R2946206
Magnesium (Mg)-Total	7.70		0.010	mg/L	11-SEP-14	12-SEP-14	R2946206
Manganese (Mn)-Total	0.109		0.00030	mg/L	11-SEP-14	12-SEP-14	R2946206
Nickel (Ni)-Total	0.0025		0.0020	mg/L	11-SEP-14	12-SEP-14	R2946206
Potassium (K)-Total	17.7		0.020	mg/L	11-SEP-14	12-SEP-14	R2946206
Sodium (Na)-Total	73.7		0.030	mg/L	11-SEP-14	12-SEP-14	R2946206
Zinc (Zn)-Total	0.0044		0.0020	mg/L	11-SEP-14	12-SEP-14	R2946206

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1514840-1 WHA 2							
Sampled By: CLIENT on 09-SEP-14 @ 09:35							
Matrix: wastewater							
Total Organic Carbon							
Total Organic Carbon	34.3		1.0	mg/L		18-SEP-14	R2951573
Total Suspended Solids							
Total Suspended Solids	5.0		5.0	mg/L		10-SEP-14	R2944583
pH							
pH	7.66		0.10	pH units		16-SEP-14	R2949560
L1514840-2 WHA 3							
Sampled By: CLIENT on 09-SEP-14 @ 09:58							
Matrix: wastewater							
Nunavut WW Group 1							
Alkalinity							
Alkalinity, Total (as CaCO3)	170		20	mg/L		16-SEP-14	R2949560
Bicarbonate (HCO3)	208		24	mg/L		16-SEP-14	R2949560
Carbonate (CO3)	<12		12	mg/L		16-SEP-14	R2949560
Hydroxide (OH)	<6.8		6.8	mg/L		16-SEP-14	R2949560
Ammonia by colour							
Ammonia, Total (as N)	14.8	DLA	1.0	mg/L		13-SEP-14	R2947191
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	12.9		6.0	mg/L		10-SEP-14	R2947769
Carbonaceous BOD							
BOD Carbonaceous	7.7		6.0	mg/L		10-SEP-14	R2947769
Chloride by Ion Chromatography							
Chloride	85.7		0.50	mg/L		09-SEP-14	R2943281
Conductivity							
Conductivity	707		20	umhos/cm		16-SEP-14	R2949560
Fecal Coliform							
Fecal Coliforms	3800		3	MPN/100mL		13-SEP-14	R2947071
Hardness Calculated							
Hardness (as CaCO3)	96.9		0.30	mg/L		13-SEP-14	
Mercury Total							
Mercury (Hg)-Total	0.000025		0.000020	mg/L	11-SEP-14	11-SEP-14	R2945829
Nitrate as N by Ion Chromatography							
Nitrate-N	0.127		0.050	mg/L		09-SEP-14	R2943281
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.127		0.071	mg/L		10-SEP-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		09-SEP-14	R2943281
Oil and Grease, Total							
Oil and Grease, Total	2.9		2.0	mg/L	12-SEP-14	12-SEP-14	R2950539
Phenol (4AAP)							
Phenols (4AAP)	0.0014		0.0010	mg/L	15-SEP-14	15-SEP-14	R2948416
Phosphorus, Total							
Phosphorus (P)-Total	6.60	DLA	0.050	mg/L		11-SEP-14	R2944633
Sulfate by Ion Chromatography							
Sulfate	26.8		0.50	mg/L		09-SEP-14	R2943281
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.328		0.0050	mg/L	11-SEP-14	12-SEP-14	R2946206
Arsenic (As)-Total	0.00092		0.00020	mg/L	11-SEP-14	12-SEP-14	R2946206
Cadmium (Cd)-Total	0.000058		0.000010	mg/L	11-SEP-14	12-SEP-14	R2946206
Calcium (Ca)-Total	27.4		0.10	mg/L	11-SEP-14	12-SEP-14	R2946206
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	11-SEP-14	12-SEP-14	R2946206
Cobalt (Co)-Total	0.00049		0.00020	mg/L	11-SEP-14	12-SEP-14	R2946206

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1514840-2 WHA 3							
Sampled By: CLIENT on 09-SEP-14 @ 09:58							
Matrix: wastewater							
Total Metals by ICP-MS							
Copper (Cu)-Total	0.0404		0.00020	mg/L	11-SEP-14	12-SEP-14	R2946206
Iron (Fe)-Total	0.52		0.10	mg/L	11-SEP-14	12-SEP-14	R2946206
Lead (Pb)-Total	0.000791		0.000090	mg/L	11-SEP-14	12-SEP-14	R2946206
Magnesium (Mg)-Total	6.94		0.010	mg/L	11-SEP-14	12-SEP-14	R2946206
Manganese (Mn)-Total	0.0795		0.00030	mg/L	11-SEP-14	12-SEP-14	R2946206
Nickel (Ni)-Total	0.0026		0.0020	mg/L	11-SEP-14	12-SEP-14	R2946206
Potassium (K)-Total	17.8		0.020	mg/L	11-SEP-14	12-SEP-14	R2946206
Sodium (Na)-Total	67.5		0.030	mg/L	11-SEP-14	12-SEP-14	R2946206
Zinc (Zn)-Total	0.0523		0.0020	mg/L	11-SEP-14	12-SEP-14	R2946206
Total Organic Carbon							
Total Organic Carbon	33.8		1.0	mg/L		18-SEP-14	R2951573
Total Suspended Solids							
Total Suspended Solids	5.0		5.0	mg/L		10-SEP-14	R2944583
pH							
pH	7.50		0.10	pH units		16-SEP-14	R2949560
L1514840-3 WHA 4							
Sampled By: CLIENT on 09-SEP-14 @ 09:20							
Matrix: wastewater							
Nunavut WW Group 1							
Alkalinity							
Alkalinity, Total (as CaCO3)	169		20	mg/L		16-SEP-14	R2949560
Bicarbonate (HCO3)	207		24	mg/L		16-SEP-14	R2949560
Carbonate (CO3)	<12		12	mg/L		16-SEP-14	R2949560
Hydroxide (OH)	<6.8		6.8	mg/L		16-SEP-14	R2949560
Ammonia by colour							
Ammonia, Total (as N)	1.21	DLA	0.10	mg/L		11-SEP-14	R2945313
Biochemical Oxygen Demand (BOD)							
Biochemical Oxygen Demand	<6.0		6.0	mg/L		10-SEP-14	R2947769
Carbonaceous BOD							
BOD Carbonaceous	<6.0		6.0	mg/L		10-SEP-14	R2947769
Chloride by Ion Chromatography							
Chloride	114		0.50	mg/L		09-SEP-14	R2943281
Conductivity							
Conductivity	709		20	umhos/cm		16-SEP-14	R2949560
Fecal Coliform							
Fecal Coliforms	750		3	MPN/100mL		13-SEP-14	R2947071
Hardness Calculated							
Hardness (as CaCO3)	263		0.30	mg/L		13-SEP-14	
Mercury Total							
Mercury (Hg)-Total	<0.000020		0.000020	mg/L	11-SEP-14	11-SEP-14	R2945829
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		09-SEP-14	R2943281
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		10-SEP-14	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		09-SEP-14	R2943281
Oil and Grease, Total							
Oil and Grease, Total	<2.0		2.0	mg/L	12-SEP-14	12-SEP-14	R2950539
Phenol (4AAP)							
Phenols (4AAP)	<0.0010		0.0010	mg/L	15-SEP-14	15-SEP-14	R2948416
Phosphorus, Total							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1514840-3 WHA 4							
Sampled By: CLIENT on 09-SEP-14 @ 09:20							
Matrix: wastewater							
Phosphorus, Total							
Phosphorus (P)-Total	0.090		0.010	mg/L		11-SEP-14	R2944633
Sulfate by Ion Chromatography							
Sulfate	52.8		0.50	mg/L		09-SEP-14	R2943281
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.0111		0.0050	mg/L	11-SEP-14	12-SEP-14	R2946206
Arsenic (As)-Total	0.00161		0.00020	mg/L	11-SEP-14	12-SEP-14	R2946206
Cadmium (Cd)-Total	0.000039		0.000010	mg/L	11-SEP-14	12-SEP-14	R2946206
Calcium (Ca)-Total	82.4		0.10	mg/L	11-SEP-14	12-SEP-14	R2946206
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	11-SEP-14	12-SEP-14	R2946206
Cobalt (Co)-Total	0.00094		0.00020	mg/L	11-SEP-14	12-SEP-14	R2946206
Copper (Cu)-Total	0.00262		0.00020	mg/L	11-SEP-14	12-SEP-14	R2946206
Iron (Fe)-Total	1.66		0.10	mg/L	11-SEP-14	12-SEP-14	R2946206
Lead (Pb)-Total	0.000501		0.000090	mg/L	11-SEP-14	12-SEP-14	R2946206
Magnesium (Mg)-Total	13.8		0.010	mg/L	11-SEP-14	12-SEP-14	R2946206
Manganese (Mn)-Total	0.244		0.00030	mg/L	11-SEP-14	12-SEP-14	R2946206
Nickel (Ni)-Total	0.0047		0.0020	mg/L	11-SEP-14	12-SEP-14	R2946206
Potassium (K)-Total	9.31		0.020	mg/L	11-SEP-14	12-SEP-14	R2946206
Sodium (Na)-Total	67.4		0.030	mg/L	11-SEP-14	12-SEP-14	R2946206
Zinc (Zn)-Total	0.0361		0.0020	mg/L	11-SEP-14	12-SEP-14	R2946206
Total Organic Carbon							
Total Organic Carbon	11.1		1.0	mg/L		18-SEP-14	R2951573
Total Suspended Solids							
Total Suspended Solids	7.0		5.0	mg/L		10-SEP-14	R2944583
pH							
pH	7.43		0.10	pH units		16-SEP-14	R2949560

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
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.

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
FC-MPN-WP	Water	Fecal Coliform	APHA 9221E

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

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

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

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

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

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

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

NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (Modified)

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
OGG-TOT-WT	Water	Oil and Grease, Total	APHA 5520 B
Sample is extracted with hexane, extract is then evaporated and the residue is weighed to determine total oil and grease.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SO4-IC-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
SOLIDS-TOTSUS-WP	Water	Total Suspended Solids	APHA 2540 D (modified)
Total suspended solids in aquesous matrices is determined gravimetrically after drying the residue at 103 105°C.			

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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

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

10- 312604

ALS Environmental

L1514840-COFC

Page ____ of ____

Report To		R		Service Request: (Rush subject to availability - Contact ALS to confirm TAT)	
Company:	Paul Kaludjak Hamlet of W.C	Standard: ✓	Other (specify):	✓	Regular (Standard Turnaround Times - Business Days)
Contact:	Paul Kaludjak	Select: PDF ✓ Excel Digital Fax			Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address:	Box 120 Whale Cove, Nu	Email 1:	sao@whalecove.ca		Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	X0C 0J0	Email 2:	mlusty@gov.nu.ca		Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 867-896-9961	Fax:				

Invoice To	Same as Report ? (circle) Yes or No (if No, provide details)	Client / Project Information	
	Copy of Invoice with Report? (circle) Yes or No	Job #:	Whale Cove Monitoring Program
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #:	
Lab Work Order # (lab use only)		ALS Contact:	Sampler:

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

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	500ml BOD	1L Routine	2x oil & grease	250ml Nutrient	250ml Metals	125ml Bacteria	250ml Phenols						Number of Containers
	WHA 2	09/09/14	9:35	waterwaste	✓	✓	✓										
	WHA 3	09/09/14	9:58	waterwaste	✓	✓	✓										
	WHA 4	09/09/14	9:20	waterwaste	✓	✓	✓	✓	P	B	P						

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

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: [signature]	Date: 09/09/14	Time: 11:00AM	Received by: PD	Date: 9/9/14	Time: 12:45	Temperature: 7. °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF