



September 6, 2013

Northwest Territories Water Board
P.O. Box 2531
Inuvik, NT
XOE 0T0

Attention: Freda Wilson

Dear Ms. Wilson:

**Water License No. N7L1-1834 at Camp Farewell
2013 Summary Report**

This letter has been written on behalf of Shell Canada Energy (Shell) by IEG Consultants Ltd. (IEG) regarding Water Licence No. N7L1-1834. This letter summarizes water use and disposal at Shell's Camp Farewell site in 2013.

In 2013, water was not obtained for site use from the Mackenzie River or the unnamed lake north of the site. In July 2013, approximately 1,800 m³ of meltwater contained in the on-site lagoon was discharged to the Mackenzie River. The meltwater was pumped from the lagoon using two pumps over three days, and discharged via hoses extending from the lagoon into the Mackenzie River. On June 12, 2013, prior to discharge, the meltwater was sampled by IEG. The meltwater was sampled again on July 10, 2013 during discharge by the contractor on-site. The results of each sample collected met the criteria provided by the Northwest Territories Water Board in Water Licence N7L1-1834, however, the water sample collected during discharge did not reach the lab within the applicable holding times for parameters being analyzed. The sample collected in June 2013 is considered to be representative of water conditions at the time of discharge in July 2013. The analytical results for each sample collected are attached.

If you have any questions or comments, please contact Nicole Wills at IEG at (403) 730-6809 or at nwills@klohn.com.

Yours truly,
IEG CONSULTANTS LTD.

A handwritten signature in blue ink that reads 'Nicole Wills'.

Nicole Wills, P.Ag.

c.c. Randall Warren – Shell Canada Energy

Attachments: 2013 Analytical Reports

130806 NWTWB Summary Report
A04012A04.720



IEG CONSULTANTS LTD.
ATTN: Nicole Wills
500-2618 Hopewell Place NE
Calgary AB T1Y7J7

Date Received: 13-JUN-13
Report Date: 25-JUN-13 13:34 (MT)
Version: FINAL

Client Phone: 403-829-3048

Certificate of Analysis

Lab Work Order #: L1316639
Project P.O. #: NOT SUBMITTED
Job Reference: A04012A03
C of C Numbers: 10-186493
Legal Site Desc: Campr Farewell



Jessica Spira
Senior Account Manager

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ADDRESS: 9936-67 Avenue, Edmonton, AB T6E 0P5 Canada | Phone: +1 780 413 5227 | Fax: +1 780 437 2311
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1316639-1 CAMP FAREWELL							
Sampled By: XX on 12-JUN-13 @ 10:45							
Matrix: Water							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		20-JUN-13	R2635067
Chlorine, Total	<0.10		0.10	mg/L		15-JUN-13	R2633491
Oil and Grease	<1.0		1.0	mg/L		17-JUN-13	R2633108
Special Request	See Attached					14-JUN-13	R2635429
Phosphorus (P)-Total	0.070		0.020	mg/L	19-JUN-13	20-JUN-13	R2635966
Total Suspended Solids	18.0		3.0	mg/L		18-JUN-13	R2633325
Routine Water Analysis							
Chloride by IC							
Chloride (Cl)	16.5		0.50	mg/L		15-JUN-13	R2632795
Dissolved Metals in Water by CRC ICPMS							
Calcium (Ca)-Dissolved	28.9		0.50	mg/L		24-JUN-13	R2637095
Magnesium (Mg)-Dissolved	7.84		0.10	mg/L		24-JUN-13	R2637095
Potassium (K)-Dissolved	1.19		0.50	mg/L		24-JUN-13	R2637095
Sodium (Na)-Dissolved	11.2		1.0	mg/L		24-JUN-13	R2637095
Ion Balance Calculation							
Ion Balance	113	BL:INT		%		24-JUN-13	
TDS (Calculated)	129			mg/L		24-JUN-13	
Hardness (as CaCO3)	104			mg/L		24-JUN-13	
Nitrate as N by IC							
Nitrate (as N)	0.094		0.050	mg/L		15-JUN-13	R2632795
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.094		0.071	mg/L		20-JUN-13	
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		15-JUN-13	R2632795
Sulfate by IC							
Sulfate (SO4)	19.4		0.50	mg/L		15-JUN-13	R2632795
pH, Conductivity and Total Alkalinity							
pH	7.86		0.10	pH		15-JUN-13	R2632887
Conductivity (EC)	235		0.20	uS/cm		15-JUN-13	R2632887
Bicarbonate (HCO3)	87.8		5.0	mg/L		15-JUN-13	R2632887
Carbonate (CO3)	<5.0		5.0	mg/L		15-JUN-13	R2632887
Hydroxide (OH)	<5.0		5.0	mg/L		15-JUN-13	R2632887
Alkalinity, Total (as CaCO3)	72.0		5.0	mg/L		15-JUN-13	R2632887

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
BL:INT	Balance Reviewed: Interference Or Non-Measured Component
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**
CL-IC-ED	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
CL2-TOT-ED	Water	Chlorine, Total	APHA 4500 Cl G-Colorimetry
FC-MF-TG	Water	Fecal Coliforms by MF	SM9222D
IONBALANCE-ED	Water	Ion Balance Calculation	APHA 1030E
MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
NO2+NO3-CALC-ED	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-ED	Water	Nitrite as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
OGG-LLE-ED	Water	Oil and Grease-Gra	APHA 5520 B HEXANE MTBE EXT. GRAVIME
P-T-COL-ED	Water	Total P in Water by Colour	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/EC/ALK-ED	Water	pH, Conductivity and Total Alkalinity	APHA 4500-H, 2510, 2320
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
SO4-IC-ED	Water	Sulfate by IC	APHA 4110 B-ION CHROMATOGRAPHY
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
SPECIAL REQUEST-TG	Misc.	Special Request Taiga Yellowknife	SEE SUBLET LAB RESULTS

** 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
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
TG	TAIGA ENVIRONMENTAL LABORATORY (INAC)

Chain of Custody Numbers:

10-186493

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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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.



Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.:
130372

- FINAL REPORT -

Prepared For: ALS Environmental

Address: 314 Old Airport Road
Unit 116
Yellowknife, NT
X1A 2R1

Attn: Bruce Stuart

Facsimile:

Final report has been reviewed and approved by:

A handwritten signature in black ink, appearing to read 'Angelique Ruzindana', written over a horizontal line.

Angelique Ruzindana
Quality Assurance Officer

NOTES:

- Test methods and data are validated by the laboratory's Quality Assurance Program. Taiga Environmental Laboratory is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) as a testing laboratory for specific tests registered with CALA.
- Routine methods are based on recognized procedures from sources such as
 - Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
 - Environment Canada
 - USEPA
- Samples shall be kept for thirty (30) days after the final report is issued. All microbiological samples shall be disposed of immediately upon completion of analysis to minimize biohazardous risks to laboratory personnel. Please contact the laboratory if you have any special requirements.
- Final results are based on the specific tests at the time of analysis and do not represent the conditions during sampling.

ReportDate: Thursday, June 20, 2013

Print Date: Thursday, June 20, 2013



Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.:
130372

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1316639-1 Camp Farewell**

Taiga Sample ID: **001**

Client Project:

Sample Type: Water
Received Date: 14-Jun-13
Sampling Date: 12-Jun-13
Sampling Time: 10:45

Location:

Report Status: Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<u>Inorganics - Nutrients</u>						
Biochemical Oxygen Demand	4	2	mg/L	14-Jun-13	SM5210:B	
<u>Microbiology</u>						
Coliforms, Fecal (other)	< 1	1	CFU/100mL	14-Jun-13	SM9222:D	88

ReportDate: Thursday, June 20, 2013

Print Date: Thursday, June 20, 2013



Taiga Environmental Laboratory
4601-52nd Ave., Box 1500, Yellowknife, NT. X1A 2R3
Tel: (867)-669-2788 Fax: (867)-669-2718

Taiga Batch No.:
130372

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1316639-1 Camp Farewell**

Taiga Sample ID: **001**

- DATA QUALIFIERS -

Data Qualifier Descriptions:

88 *Samples analysed past holding time, as per client request.*

*** Taiga analytical methods are based on the following standard analytical methods**

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

ReportDate: Thursday, June 20, 2013

Print Date: Thursday, June 20, 2013

Page 3 of 3



Report To Nicole Willis	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: iEG Consultants Ltd.	Standard: <input checked="" type="checkbox"/> Other (specify):	<input checked="" type="checkbox"/> Regular (Standard Turnaround Times - Business Days)
Contact: Nicole Willis	Select: PDF <input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> Digital Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 500-2618 Hopewell Place NE Calgary, AB	Email 1: nwillis@klehn.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: (403) 829-3048 Fax: (403) 274-5349	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To Same as Report? (circle) <input checked="" type="radio"/> Yes or No (if No, provide details)	Client / Project Information	Analysis Request (Indicate Filtered or Preserved, F/P)									
Copy of Invoice with Report? (circle) Yes or No	Job #: A04012A03										
Company:	PO / AFE:										
Contact:	LSD: Camp Farewell										
Address:	Quote #:										
Phone: Fax:	ALS Contact:										
Lab Work Order # (lab use only) L1316639	Sampler:										

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Routine	Nutrients	Oil and grease	Biological oxygen demand	Total suspended Solids	Fecal coliforms	Total Residual chlorine	pH	Ammonia	Phosphorous	Total chlorine	Number of Containers
1	Camp Farewell	12-Jun-13	10:45 a.m.	water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7



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: <i>Nicole Willis</i>	Date: Jun 12/13	Time:	Received by: <i>M. Harsh</i>	Date: Jun. 13/13	Time: 5:20	Temperature: Max 6.4 Avg 6 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

WHITE PAPER CO. 604 951-3900

Your Project #: A04012A05
 Your C.O.C. #: 1 OF 1

Attention: NICOLE WILLS

KLOHN CRIPPEN BERGER LTD
 500-2618
 HOPEWELL PLACE NE
 CALGARY, AB
 CANADA T1Y 7J7

Report Date: 2013/07/26

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B362235
Received: 2013/07/19, 8:50

Sample Matrix: Water
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Biochemical Oxygen Demand (1)	2	2013/07/21	2013/07/26	AB SOP-00017	SM 5210 B
Chlorine (Free) (1)	2	N/A	2013/07/22	AB SOP-00032	SM Method 4500-CI G
Chlorine (Total) (1)	2	N/A	2013/07/22	AB SOP-00032	SM Method 4500-CI G
Oil and Grease by IR (1)	2	2013/07/24	2013/07/25	CAL SOP-00096	SM 5520C
Total Suspended Solids (NFR) (1)	2	2013/07/25	2013/07/25	AB SOP-00061	SM 2540-D

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Tanya Eugene, M.Sc., Project Manager
 Email: TEugine@maxxam.ca
 Phone# (780) 577-7144

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Analytics - Partial/Rush Results

Maxxam Job #: B362235
 Report Date: 2013/07/26

 KLOHN CRIPPEN BERGER LTD
 Client Project #: A04012A05

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		GY9632	GY9633		
Sampling Date					
COC Number		1 OF 1	1 OF 1		
	UNITS	#2	#3	RDL	QC Batch

Demand Parameters					
Biochemical Oxygen Demand	mg/L	<5.0 (1)	<5.0 (2)	5.0	7006665
Misc. Inorganics					
Free Chlorine	mg/L	0.050 (3)	0.020 (3)	0.020	7009264
Total Chlorine	mg/L	0.060 (3)	0.020 (3)	0.020	7009265
Total Suspended Solids	mg/L	8.0 (4)	8.0 (4)	1.5	7019938
Misc. Organics					
Oil and grease	mg/L	<20 (5)	<20 (5)	20	7007935

RDL = Reportable Detection Limit
 (1) Detection limits raised due to insufficient sample volume. Sample analyzed 194.5 hrs. after sample collection. Sample analysis is recommended within 48 hrs. of sampling to obtain the most probable number.
 (2) Detection limit raised based on sample volume used for analysis. Sample analyzed 194.5 hrs. after sample collection. Sample analysis is recommended within 48 hrs. of sampling to obtain the most probable number.
 (3) Sample received past method-specified hold time.
 (4) Detection limits raised due to insufficient sample volume.
 (5) Detection limit raised based on sample volume used for analysis.

Maxxam Analytics - Partial/Rush Results

Maxxam Job #: B362235
Report Date: 2013/07/26

KLOHN CRIPPEN BERGER LTD
Client Project #: A04012A05

Package 1	6.3°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Results relate only to the items tested.

Maxxam Analytics - Partial/Rush Results

KLOHN CRIPPEN BERGER LTD
 Attention: NICOLE WILLS
 Client Project #: A04012A05
 P.O. #:
 Site Location:

Quality Assurance Report
 Maxxam Job Number: CB362235

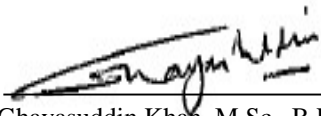
QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7006665 LH8	Spiked Blank	Biochemical Oxygen Demand	2013/07/26		93	%	85 - 115
	Method Blank	Biochemical Oxygen Demand	2013/07/26	<2.0		mg/L	
	RPD [GY9632-01]	Biochemical Oxygen Demand	2013/07/26	NC		%	20
7007935 ABG	Spiked Blank	Oil and grease	2013/07/25		106	%	70 - 130
	Method Blank	Oil and grease	2013/07/25	<2.0		mg/L	
7009264 LS0	Matrix Spike [GY9632-01]	Free Chlorine	2013/07/22		85	%	80 - 120
	Spiked Blank	Free Chlorine	2013/07/22		90	%	80 - 120
	Method Blank	Free Chlorine	2013/07/22	<0.020		mg/L	
	RPD [GY9632-01]	Free Chlorine	2013/07/22	NC		%	20
7009265 LS0	Matrix Spike	Total Chlorine	2013/07/22		81	%	80 - 120
	Spiked Blank	Total Chlorine	2013/07/22		96	%	80 - 120
	Method Blank	Total Chlorine	2013/07/22	<0.020		mg/L	
	RPD	Total Chlorine	2013/07/22	NC		%	20
7019938 KKV	Matrix Spike	Total Suspended Solids	2013/07/25		93	%	80 - 120
	Spiked Blank	Total Suspended Solids	2013/07/25		96	%	80 - 120
	Method Blank	Total Suspended Solids	2013/07/25	<1.0		mg/L	
	RPD	Total Suspended Solids	2013/07/25	9.0		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
 Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
 Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
 NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B362235

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ghayasuddin Khan, M.Sc., B.Ed., P.Chem, Scientific Specialist



Janet Gao, Senior Analyst, Organics Department

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Maxxam Analytics - Partial/Rush Results