Lupin Mines Incorporated

A wholly owned indirect subsidary of Elgin Mining Inc.

Lupin Mine Site

Nunavut, Canada

Annual Report, 2011

(Care and Maintenance)

March 2012

Lupin Mines Incorporated
Elgin Mining Inc.
#201 - 750 West Pender Street
Vancouver, BC, V6C 2T7

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1 Introduction

Lupin Mines Incorporated (LMI), a wholly owned indirect subsidiary of Elgin Mining Inc. (Elgin), has prepared this Annual Report (the Report) with respect to the requirements within water licence number 2AM-LUP0914 (Water Licence), Part B, Item 2.

The current Type A water licence 2AM-LUP0914 (Water Licence) for the Lupin Gold Mine (Lupin or the Lupin Mine) is valid until March 31, 2014 and has been kept in good standing.

1.1 Project and Company Information

Elgin is a Canadian based company focused on the exploration and development of the Lupin Mine and Ulu Gold Project, both located in Nunavut, Canada.

Elgin purchased LMI, which owns the Lupin Mine, from MMG Resources Ltd. in July 2011. The Lupin site was an operational underground gold mine from 1982 to 2005 with temporary suspensions of activities between Jan 1998 and April 2000, and again between Aug 2003 and March 2004. The mine resumed production in March 2004 until 2005. Since 2005, the site has remained in care and maintenance.

An exploration program is currently underway at the Lupin site under water licence 2BE-LEP1217. All camp infrastructure required for the exploration program currently exists at the Lupin Mine site, which has previously been screened by the Nunavut Impact Review Board under file 99WR053 and approved by the Nunavut Water Board under water licence 2AM-LUP0914.

Company:	LMI
Project:	Lupin Mine, Nunavut
Company Address:	201 – 750 W Pender St, Vancouver, BC, V6C 2T7
Telephone:	604-682-3366
Email:	shamm@elginmining.com
Attention:	Sharleen Hamm, Manager, Environment

1.2 Site Location

The Lupin Mine is located in Kitikmeot Region, Nunavut, 360 km north-northeast of Yellowknife, Northwest Territories and 285 km southeast of Kugluktuk. The geographic center of that property is 65° 45’29” N / 113° 13’20W (Figure 1). It is on the western shore of Contwoyto Lake, approximately 60 km south of the Arctic Circle.

1.3 Environmental Policy – Key Components

LMI looks to our employees, contractors and managers to adopt and grow a culture of environmental excellence. Together we achieve this by:

- Promoting environmental stewardship in all tasks. Nothing is too important that it cannot be done in a clean and responsible manner. We strive towards maintaining a zero-incident work place.
- Recognizing that we have a shared responsibility as stewards of the environment in which we operate. We will not walk away from a non-compliant act.
- Identifying, managing and mitigating environmental, business and social risks in an open, honest and transparent manner.
- Planning our work so it is done in the cleanest possible manner and executing work according to plan.
- Continually improving environmental and operational performance by setting and reviewing achievable targets.
- Providing appropriate and necessary resources in the form of training, personnel and capital, including that required for closure planning and reclamation.
- Managing our materials and waste streams, maintaining a high degree of emergency response preparedness and minimizing our operational footprint to maintain environmental protection at all stages of project development.
- Seeking to understand, learn from and mitigate the root causes of environmental incidents and near misses when they do occur.
- Employing systems and technology to achieve compliance, increase efficiency and promote industry best practices in development, operations and environmental stewardship.

1.4 Purpose and Scope

The purpose of this report is to fulfill annual reporting requirements under Part B Item 2 of Licence 2AM-LUP0914 for 2011. The Report is structured as per Schedule B1 of the Water Licence.

1.5 Summary

Activities at the Lupin site in 2011 include work associated with care and maintenance of the facility as well as an exploration program, under water licence 2BE-LEP1217. Water withdrawal from Contwoyto Lake was limited to September, October, November and December. There was an unauthorized discharge from the Sewage Lakes Disposal Facility and an unauthorized discharge of from the Bulk Fuel

Storage Facility. All effluent was tested to determine that it met the discharge limits prior to and during discharge.

Translations of this summary can be found in the appendices.

2 Monthly and Annual Quantities and Sampling Schedule B1 (a-e)

Water withdrawal from Contwoyto Lake and sewage disposal in 2011 were limited to September, October, November and December. Water was withdrawn from LUP-01. Sewage and grey water were collected in a sewage tank at the 1300 wing of the accommodation building. The tank was then hauled to the Upper Sewage Lake wherein waste was deposited at LUP-14. Grey water originating from guesthouse use was deposited in a leaching pit adjacent to the guesthouse.

No treated tailings effluent was discharged from LUP-10, nor was any mine water from LUP-11.

Reportable quantities of water and waste are presented in Table 1, and station locations are identified in Figure 2. Data collected under Schedule B1 (e) can be found in Appendix 1.

Legend

Project Location

Coordinate System: NAD_1983_UTM_Zone_12N

Map Sources/Notes:
Various Canadian Government Websites - Feb 2012

0 60 120 240 360 480 600 Km

1:15,000,000

Approved By: SH
Prepared By: PW
Project No.: LUP
Date Revised: 21 Mar 2012
File Name: Lup-12-10-01-LocationMap-A.mxd

Project: **Lupin Project**
Location: Kitikmeot Region, Nunavut, Canada
Lupin Mine Annual Report - Water Licence 2AM-LUP0914

Location Map - Lupin Mine

Lupin Mines Incorporated

ELGIN MINING INC.

Figure: **1**
Rev: 120321

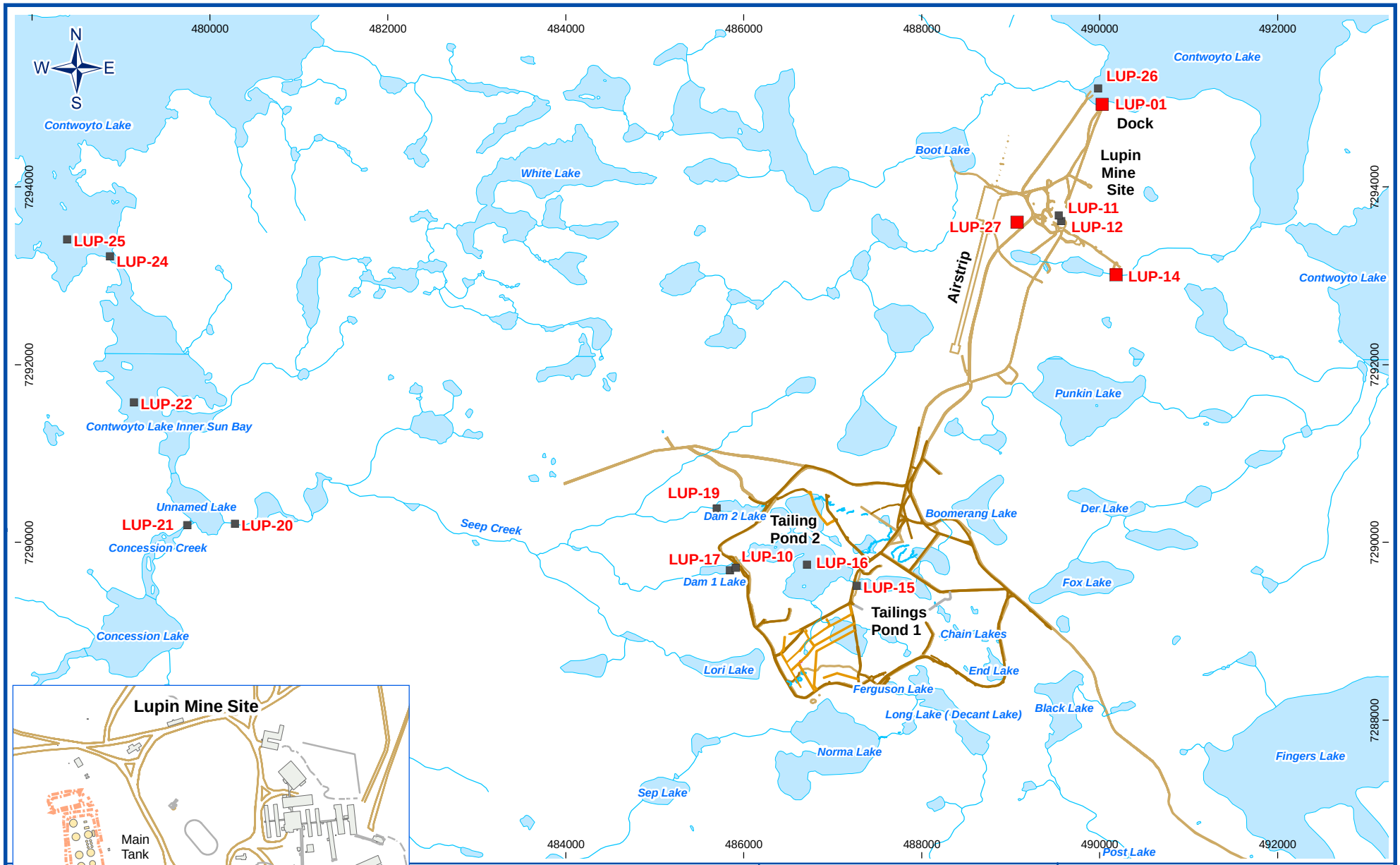
N
W
E
S
480000
482000
484000
486000
488000
490000
492000
7294000
7292000
7290000
7288000
Contwoyto Lake
White Lake
Boot Lake
Lupin Mine Site
LUP-26
LUP-01
Dock
LUP-11
LUP-12
LUP-27
LUP-14
Airstrip
LUP-25
LUP-24
LUP-22
Contwoyto Lake Inner Sun Bay
Punkin Lake
Unnamed Lake
LUP-21
LUP-20
Concession Creek
Seep Creek
LUP-19
Dam 2 Lake
Tailing Pond 2
Boomerang Lake
Der Lake
LUP-17
LUP-10
LUP-16
Dam 1 Lake
LUP-15
Fox Lake
Tailings Pond 1
Chain Lakes
Concession Lake
Lori Lake
End Lake
Ferguson Lake
Long Lake (Decant Lake)
Black Lake
Norma Lake
Fingers Lake
Sep Lake
Post Lake
Lupin Mine Site
Main Tank Farm
Mill
LUP-12
LUP-27
LUP-11
Meters
0 50 100 200 300
Legend
Water Body from 50k Topo
Roads
Water sampling and discharge locations
Station Active in 2011
Station Inactive in 2011
Coordinate System: NAD_1983_UTM_Zone_12N
NTS Map Sheets 076E11 and 076E14
Meters
0 250 500 1,000 1,500 2,000 2,500
1:60,000
Approved By: SH
Prepared By: PW
Project No.: LUP
Date Revised: 21 Mar 2012
File Name: Lup-12-10-02-SamplingLocations-A.mxd
Project: Lupin Gold Mine
Location: Kitikmeot Region, Nunavut, Canada
Lupin Mine Annual Report - Water Licence 2AM-LUP0914
Sampling Locations - Lupin Mine
Lupin Mines Incorporated
ELGIN MINING INC.
Figure: 2
Rev: 120321

Table 1 Reportable Quantities of Water and Waste, Lupin Mine, 2011

Station	Location	Monthly Quantity, 2011 (m^3)												Annual (2012)
		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	(m^3)
LUP-01	Freshwater Intake	0	0	0	0	0	0	0	0	6.8	9.5	146	277.2	**439.5**
LUP-10	Pond 2 Discharge at Dam 1 A	Not Active												**0**
LUP-11	Minewater Discharge	Not Active												**0**
LUP-12	Mill Tailings	Not Active												**0**
LUP-14	Treated Sewage Effluent Discharge	0	0	0	0	0	0	0	0	42000	60000	0	0	**102000**
LUP-15	Discharge from Pond 1 into Pond 2	Not Active												**0**
LUP-16	Pond 2 at Centre	Not Active												**0**
LUP-17	Pond 2 upstream of LUP-10	Not Active												**0**
LUP-19	East End of Seep Creek in Dam 2 Lake	Not Active												**0**
LUP-20	West End of Seep Creek	Not Active												**0**
LUP-21	North End of Concession Creek	Not Active												**0**
LUP-22	Inner Sun Bay Near Centre	Not Active												**0**
LUP-24	Inner Sun Bay Near Narrows	Not Active												**0**
LUP-25	Outer Sun Bay	Not Active												**0**
LUP-26	Contwoyto Lake east of intake	Not Active												**0**
LUP-27	Bulk Fuel Storage Facility	0	0	0	0	0	0	0	0	2600	0	0	0	**2600**

3 Inspections, Schedule B1 (f)

A Water Use Inspection was conducted by AANDC in July 2011. A summary of the inspection and actions taken to address concerns are summarized below. The inspection report is included in Appendix 2.

Table 2 Aboriginal Affairs and Northern Development Canada (AANDC) Water Use Inspection, July 9, 2011

Inspection Item	Action Taken
Barrels labeled WSC stored on the shoreline of Contwoyto Lake	Barrels were removed to a bermed area >30 m beyond the high water mark of Contwoyto Lake
Exposed tailings within the tailings containment area (TCA); water levels exceeding required freeboard at Dam J; erosion and sloughing at the sides of the dam; continuing maintenance at the TCA	Annual geotechnical inspection of TCA was conducted and an implementation plan submitted to the Board as per Part E6 (g) of Licence 2AM-LUP0914.
Fuel stored on site does not appear to be monitored on a continuous basis, tank registration appears incomplete, tank signage is not visible.	Remedial works were conducted on site, fuel was consolidated, empty tanks were blinded or disconnected from headers, piping was pressure tested. All works are summarized in the *Fuel Containment Management Strategy*, submitted to AANDC, along with a work plan for maintenance works planned for 2012.

4 Modifications and Maintenance: Water Supply and Waste, Schedule B1 (g)

No physical work was carried out on the water supply and waste disposal facilities in 2011.

A limited geotechnical inspection of the Sewage Lakes Disposal Facility dikes on September 22, 2011 noted signs of stress and slope instability of interior dikes and pond levels which may be higher than design and/or operational limits. Lower Sewage Lake did not appear to have significant capacity for storm events and/or spring freshet. Breaching water from a failure of interior dikes could potentially overtop and breach the perimeter dike of Lower Sewage Lake. The lowering of lake levels was recommended as a temporary remedial measure. Discharge commenced September 23 and ceased October 10 when the siphons started to freeze. Additional stabilization measures will be required in 2012.

5 Unauthorized Discharges, Schedule B1 (h)

There was an unauthorized discharge of effluent from LUP-14 (Sewage Lakes Disposal Facility) between September 23 and October 10, 2011 and an unauthorized discharge of from LUP-27 (Bulk Fuel Storage Facility) September 20 to 23, 2011. These events were reported in the October monthly report to the Nunavut Water Board. All effluent was tested to determine that it met the discharge limits prior to and during discharge, however the Inspector was not provided the analytical results prior to discharge.

At the time of discharge, Part E Conditions Applying to Waste Disposal, Item 1 through 6 of Water Licence 2AM-LUP0914 were interpreted to apply only to discharge from the TCA. Subsequent to the discharge of the effluent, LMI reviewed the Lupin Mine TCA Discharge Procedure Manual prepared by the former owner, MMG Canada Operations Inc., and noted that the Inspector was also to be notified ten (10) days prior to any planned discharge from the Sewage Lakes Disposal Facility. A call to the AANDC Water Resources Inspector on October 27 confirmed that Part E Item 4 applies to all planned discharges.

6 Plans, Reports and Manuals, Schedule B1 (i)

Overall, report revisions have been limited to updates focused on the change in ownership and mapping to reflect current site conditions. Specific content changes are summarized below, and revised plans can be found in the appendices.

6.1 Spill Contingency Plan (SCP)

Material changes to the SCP include:

- Updated figures illustrating the current location of new spill kits and copies of the *Spill Contingency Plan*; and
- Updated SCP to address comments from parties, as submitted to the NWB.

6.2 Abandonment and Restoration Plan (ARP)

Material changes to the ARP include:

- Updated discussion of fuel containment facilities to reflect current tank status;
- Updated discussion of environmental effects monitoring to reflect completion of the Cycle 3 program and the Investigation of Cause; and
- Updated ARP to address comments from parties, as submitted to the NWB.

6.3 Care and Maintenance Plan (CMP)

Material changes to the CMP include:

- Revision of solid waste management practices and update of *Solid Waste Management Plan*;
- Updated all plans and procedures to address comments from parties, as submitted to the NWB;
- Revised the *Stormwater Management Plan* to be inclusive of water and liquid waste management on site; and
- Added *Appendix 6 Fuel Containment Management Strategy*.

7 Progressive Reclamation to Tailings Cover, Schedule B1 (j)

No reclamation activities as it relates to the tailings cover occurred in 2011. LMI is currently investigating options to restart mine operations. Until such time as this work is advanced, the property will remain under care and maintenance; formal reclamation works will not be initiated.

8 Public Consultation, Schedule B1 (k)

Stakeholder engagement activities conducted by LMI commenced in third quarter 2011 and were ongoing throughout the remainder of the year and into 2012, as summarized in Table 3.

Table 3 Stakeholder Engagement Activities, Kitikmeot Region, 2011

Date	Location	Stakeholder Group	Purpose
August 9, 2011	Kugluktuk	KIA	• Introduction of Elgin Mining/LMI to the KIA
November 16, 2011	Yellowknife	KIA	• Introduction of new team members to KIA • Provided project update • Discussed contact person for employment and training • Discussed preferred method and timing of engagement activities

Activities subsequently undertaken include:

- Development of a Stakeholder Map, a tool for internal use by LMI to understand the various stakeholder groups and provide rationale for engagement activities;
- Ongoing engagement with relevant stakeholder groups;
- Commencement of consultation plan, strategic plan and communications plan development;
- Procurement of a facilitator to provide Inuit cultural awareness training to LMI management team; and
- Initiated working relationship with KIA employment and training coordinator.

9 Abandonment and Reclamation, Schedule B1 (l)

No abandonment and remediation works occurred in 2011. Works planned for 2012 include:

- Addressing uncovered tailings in TCA;
- Conducting an assessment of the current status of tailings cover in the TCA;
- Based on the results of the tailings cover assessment, developing remedial plans and updating the *Interim Abandonment and Restoration Plan*, as needed; and
- Decommissioning storage tank systems required to be removed from service under the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (June 12, 2008)* will be initiated.

10 Mine Reclamation Liability, Schedule B1 (m)

In 2011, LMI had limited snow-free time during which to access the Lupin Mine site. Accordingly, the reclamation liability estimate was not completed. LMI commits to completing this in 2012 and will submit an updated estimate with the 2012 Annual Report to the NWB.

11 Other, Schedule B1 (n)

No additional details on water use or waste disposal were requested by the Board by November 1, 2011.

Appendices

Appendix 1 Data Generated Under the Monitoring Plan

	Freshwater Intake from Contwoyto Lake		East End of Seep Creek	Sewage Lakes Disposal Facility						Bulk Fuel Storage Facility				
Site	LUP-01		LUP-19	*Monitoring Program Limit*	Lower Sewage Lake			LUP-14		*Monitoring Program Limit Max Average/Max Grab*	Main Tank Farm	Waste Oil Tank Farm	Satellite Tank Farm	LUP-27
Sample ID	LUP-01-2011-10-24	LUP-01-2011-10-26	LUP-19		LSL-2011-10-24	LSL-2011-10-26	LSL-2011-11-05	LUP-14-2011-09-20	LUP-14-2011-09-27		MTS-2011-08	PPTS-2011-08	STS-2011-08	LUP-27-MTS-2011-09-20
Date Sampled	24-Oct-11	28-Oct-11	21-Sep-11		24-Oct-11	28-Oct-11	05-Nov-11	20-Sep-11	27-Sep-11		14-Aug-11	14-Aug-11	14-Aug-11	20-Sep-11
Units	mg/L													
Physical Tests														
Conductivity			285											
Hardness (as $CaCO_3$)	5.9	-	103		98.7	-		153	94.1					67.7
pH	-	-	4.9	*6.0-9.5*	-	7		6.58	7.61	*6.0-9.0/-*	7.48	7.77	4.83	7.66
Total Suspended Solids	<3.0	-	21.9	*35*	<3.0	-		13.2	<3.0	*15.0/30*	<3.0	3.6	39.3	39.2
Anions and Nutrients														
Alkalinity, Total (as $CaCO_3$)	-	-	<2.0		12.8	-		4.7	17.8					13.1
Ammonia (as N)	-	-	0.121		<0.050	-		0.42	0.0136	*2.0/4.0*	0.0156	0.0074	0.47	<0.0050
Nitrate and Nitrite (as N)	-	-			<0.071	0.0546		0.0214						-
Nitrate (as N)	-	-			<0.050	-			0.0172					
Nitrite (as N)	-	-			<0.050	-			0.0019					
Total Nitrogen	-	-			0.3	-			0.438					
Orthophosphate-Dissolved (as P)	-	-			-	<0.010		<0.0010	0.0022					-
Phosphorus (P)-Total	-	-			-	<0.020		0.0364	0.0183					-
Cyanides														
Cyanide, Total	-	-			<0.0050	-								
Bacteriological Tests														
Fecal Coliforms	-	<1		*100 colony forming units/100 ml*	-	<1			7					
Total Metals														
Arsenic (As)-Total	0.0009	-	0.253	*0.05*	0.00508	-		0.0141	0.00705					-
Cadmium (Cd)-Total	<0.000050	-	0.000355		<0.000050	-		0.000173	<0.000050					-
Copper (Cu)-Total	0.0015	-	0.0332	*0.2*	0.0022	-		0.0057	0.00114					-
Lead (Pb)-Total	0.00028	-	0.00472	*0.05*	0.00011	-		<0.00050	0.000071	*0.01/0.02*	<0.050	<0.050	<0.050	0.000643
Mercury (Hg)-Total	<0.00010	-	<0.000010		<0.00010	-		<0.000010						-
Nickel (Ni)-Total	0.0024	-	0.176	*0.3*	0.0112	-		0.115	0.00626					-
Zinc (Zn)-Total	0.0151	-	0.0897	*0.5*	0.0088	-		0.0687	0.0035					-
Aggregate Organics														
BOD	-	-		*30*	-	<2.0		<5.0	<5.0					-
Oil and Grease	-	-		*Visual Sheen*	<1.0	-	<1.0	<1.0	<5.0	*5.0, No Visible Sheen/10*	<1.0	<1.0	13.8	<1.0
Volatile Organic Compounds														
Benzene	-	-			<0.00050	-	<0.00050	<0.00050	<0.00050	*0.37/-*	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	-	-			<0.00050	-	<0.00050	<0.00050	<0.00050	*0.090/-*	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	-	-			<0.00050	-	<0.00050	<0.00050	<0.00050	*0.002/-*	<0.00050	<0.00050	<0.00050	<0.00050

SRK CONSULTING (CANADA) INC.
ATTN: Arlene Laudrum
202 - 5204 50th Avenue
Yellowknife NT X1A 1E2

Date Received: 15-AUG-11
Report Date: 30-AUG-11 14:01 (MT)
Version: FINAL

Client Phone: 867-766-6332

Certificate of Analysis

Lab Work Order #: L1044432

Project P.O. #: NOT SUBMITTED
Job Reference: 1CE015.000
C of C Numbers:
Legal Site Desc:

Andre Langlais
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1044432-1	L1044432-2	L1044432-3		
	Description	WATER	WATER	WATER		
	Sampled Date	14-AUG-11	14-AUG-11	14-AUG-11		
	Sampled Time	15:30	15:30	15:30		
	Client ID	MTS-2011-08	PPTS-2011-08	STS-2011-08		
Grouping	**Analyte**					
WATER						
Physical Tests	pH (pH)	7.48	7.77	4.83		
	Total Suspended Solids (mg/L)	<3.0	3.6	39.3		
Anions and Nutrients	Ammonia (as N) (mg/L)	0.0156	0.0074	0.47		
Total Metals	Lead (Pb)-Total (mg/L)	<0.050	<0.050	<0.050		
Aggregate Organics	Oil and Grease (mg/L)	<1.0	<1.0	13.8		
Volatile Organic Compounds	Benzene (mg/L)	<0.00050	<0.00050	<0.00050		
	Ethylbenzene (mg/L)	<0.00050	<0.00050	<0.00050		
	Methyl t-butyl ether (MTBE) (mg/L)	<0.00050	<0.00050	<0.00050		
	Toluene (mg/L)	<0.00050	<0.00050	<0.00050		
	ortho-Xylene (mg/L)	<0.00050	<0.00050	0.00064		
	meta- & para-Xylene (mg/L)	<0.00050	<0.00050	0.00057		
	Xylenes (mg/L)	<0.00075	<0.00075	0.00121		
	Surrogate: 4-Bromofluorobenzene (SS) (%)	106	97	91		
	Surrogate: 1,4-Difluorobenzene (SS) (%)	100	100	100		
Hydrocarbons	F2 (C10-C16) (mg/L)	<0.30	<0.30	22.3		
	F3 (C16-C34) (mg/L)	<0.30	0.36	80.8		
	F4 (C34-C50) (mg/L)	<0.30	<0.30	2.26		

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
F2-4-SF-FID-VA	Water	Extractable Hydrocarbons in water GCFID	CWS (CCME)

Petroleum Hydrocarbons (F2-F4) in Water

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, published by the United States Environmental Protection Agency (EPA) and the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." The procedure involves a liquid-liquid extraction of the entire water sample using dichloromethane prior to capillary column gas chromatography with flame ionization detection (GC/FID).

A silica gel cleanup procedure is applied before GC analysis, which is intended to selectively remove most naturally occurring organics.

MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

OGG-LL-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE GRAVIMETRIC

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3510 & 9071, published by the United States Environmental Protection Agency (EPA), "Standard Methods for the Examination of Water and Wastewater", 20th ed., Method 5520, published by the American Public Health Association, and "BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials," 5th ed., published by the B.C. Ministry of Environment, Lands & Parks, 1994. The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. ALS Environmental's routine detection limit, or Limit of Reporting (LOR), for this method is 2 mg/L for a 1L sample volume. By request, a LOR of 1 mg/L is sometimes applied for this method. The 1 mg/L LOR is equal to the 99% confidence limit Method Detection Limit as defined by the US EPA. A higher degree of variability is expected at levels below 2 mg/L.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021

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

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
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 of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
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.

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	SRK Consulting	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Arlene Laudrum	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	5204 50th Avenue, Suite 202	Email 1: alaudrum@srk.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Yellowknife, NT	Email 2:	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-766-6332 Fax: 866-380-3458	Email 3:	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: 1CE015.000	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:	SRK Consulting	PO / AFE: Lupin	
Contact:	Matthew Lai	LSD:	
Address:	2200-1066 West Hastings Street, Vancouver, BC, V6E 3X2		
Phone:	604-681-4196 Fax:	Quote #:	
Lab Work Order # (lab use only)	L1044432	ALS Contact:	Sampler: Arlene

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BETX	F2-F4	pH	total suspended solids	total oil and grease	total ammonia	total lea						Number of Containers
	MTS-2011-08	Aug 14/11	330 pm	water	x	x	x	x	x	x	x						9
	PPTS-2011-08	Aug 14/11	330pm	water	x	x	x	x	x	x	x						9
	STS-2011-08	Aug 14/11	330 pm	water	x	x	x	x	x	x	x						9

L1044432-COFC

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

CCME - Commercial

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

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Arlene Laudrum	27-06-11		RVS	5-Aug-11	9 Am	12.1 °C				

SRK CONSULTING (CANADA) INC.
ATTN: Arlene Laudrum
202 - 5204 50th Avenue
Yellowknife NT X1A 1E2

Date Received: 21-SEP-11
Report Date: 24-OCT-11 16:49 (MT)
Version: FINAL REV. 2

Client Phone: 867-766-6332

Certificate of Analysis

Lab Work Order #: L1061393

Project P.O. #: LUPIN
Job Reference: ICE015.000
C of C Numbers: 10-101443
Legal Site Desc:

Comments:

24-OCT-11: Revised report.
Lead analysis added to sample #1.

Andre Langlais
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1061393-1	L1061393-2			
	Description	WATER	WATER			
	Sampled Date	20-SEP-11	20-SEP-11			
	Sampled Time	09:15	10:30			
	Client ID	LUP-27-MTS-2011-09-20	LUP-14-2011-09-20			
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	67.7	153			
	pH (pH)	7.66	6.58			
	Total Suspended Solids (mg/L)	39.2	13.2			
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	13.1	4.7			
	Ammonia (as N) (mg/L)	<0.0050	0.420			
	Nitrate and Nitrite (as N) (mg/L)		0.0214			
	Orthophosphate-Dissolved (as P) (mg/L)		<0.0010			
	Phosphorus (P)-Total (mg/L)		0.0364			
Total Metals	Aluminum (Al)-Total (mg/L)		0.485			
	Antimony (Sb)-Total (mg/L)		<0.00050			
	Arsenic (As)-Total (mg/L)		0.0141			
	Barium (Ba)-Total (mg/L)		0.027			
	Beryllium (Be)-Total (mg/L)		<0.0010			
	Boron (B)-Total (mg/L)		<0.10			
	Cadmium (Cd)-Total (mg/L)		0.000173			
	Calcium (Ca)-Total (mg/L)	23.3	47.2			
	Chromium (Cr)-Total (mg/L)		<0.0010			
	Cobalt (Co)-Total (mg/L)		0.0441			
	Copper (Cu)-Total (mg/L)		0.0057			
	Iron (Fe)-Total (mg/L)		1.85			
	Lead (Pb)-Total (mg/L)	0.000643	<0.00050			
	Lithium (Li)-Total (mg/L)		0.0482			
	Magnesium (Mg)-Total (mg/L)	2.33	8.64			
	Manganese (Mn)-Total (mg/L)		0.509			
	Mercury (Hg)-Total (mg/L)		<0.000010			
	Molybdenum (Mo)-Total (mg/L)		<0.0010			
	Nickel (Ni)-Total (mg/L)		0.115			
	Potassium (K)-Total (mg/L)		4.9			
	Selenium (Se)-Total (mg/L)		<0.0010			
	Silver (Ag)-Total (mg/L)		<0.000020			
	Sodium (Na)-Total (mg/L)		27.6			
	Thallium (Tl)-Total (mg/L)		<0.00020			
	Tin (Sn)-Total (mg/L)		<0.00050			
	Titanium (Ti)-Total (mg/L)		<0.010			
	Uranium (U)-Total (mg/L)		0.00041			
	Vanadium (V)-Total (mg/L)		<0.0010			
	Zinc (Zn)-Total (mg/L)		0.0687			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1061393-1	L1061393-2			
	Description	WATER	WATER			
	Sampled Date	20-SEP-11	20-SEP-11			
	Sampled Time	09:15	10:30			
	Client ID	LUP-27-MTS-2011-09-20	LUP-14-2011-09-20			
Grouping	**Analyte**					
WATER						
Aggregate Organics	BOD (mg/L)		<5.0			
	Oil and Grease (mg/L)	<1.0	<1.0			
Volatile Organic Compounds	Benzene (mg/L)	<0.00050	<0.00050			
	Ethylbenzene (mg/L)	<0.00050	<0.00050			
	Methyl t-butyl ether (MTBE) (mg/L)	<0.00050	<0.00050			
	Toluene (mg/L)	<0.00050	<0.00050			
	ortho-Xylene (mg/L)	<0.00050	<0.00050			
	meta- & para-Xylene (mg/L)	<0.00050	<0.00050			
	Xylenes (mg/L)	<0.00075	<0.00075			
	Surrogate: 4-Bromofluorobenzene (SS) (%)	101	101			
	Surrogate: 1,4-Difluorobenzene (SS) (%)	101	101			
Hydrocarbons	F2 (C10-C16) (mg/L)	<0.30	<0.30			
	F3 (C16-C34) (mg/L)	<0.30	<0.30			
	F4 (C34-C50) (mg/L)	<0.30	<0.30			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Calcium (Ca)-Total	MB-LOR	L1061393-1, -2
Matrix Spike	Ammonia (as N)	MS-B	L1061393-1, -2

Qualifiers for Individual Parameters Listed:

Qualifier	Description
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.
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-COL-VA	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

ANIONS-N+N-CALC-VA	Water	Nitrite & Nitrate in Water (Calculation)	EPA 300.0

Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0

This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.

ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0

This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.

BOD5-VA	Water	Biochemical Oxygen Demand- 5 day	APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND"

This analysis is carried out using procedures adapted from APHA Method 5210 B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

BOD5-VA	Water	Biochemical Oxygen Demand- 5 day	APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND

This analysis is carried out using procedures adapted from APHA Method 5210 B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

F2-4-SF-FID-VA	Water	Extractable Hydrocarbons in water GCFID	CWS (CCME)

Petroleum Hydrocarbons (F2-F4) in Water

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, published by the United States Environmental Protection Agency (EPA) and the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." The procedure involves a liquid-liquid extraction of the entire water sample using dichloromethane prior to capillary column gas chromatography with flame ionization detection (GC/FID).

A silica gel cleanup procedure is applied before GC analysis, which is intended to selectively remove most naturally occurring organics.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-TOT-LOW-CVAFS-VA	Water	Total Mercury in Water by CVAFS(Low)	EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-TOT-CCME-MS-VA	Water	Total Metals in Water by ICPMS (CCME)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or

Reference Information

microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

OGG-LL-SF-VA Water Oil & Grease by Gravimetric BCMOE GRAVIMETRIC

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3510 & 9071, published by the United States Environmental Protection Agency (EPA), "Standard Methods for the Examination of Water and Wastewater", 20th ed., Method 5520, published by the American Public Health Association, and "BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials," 5th ed., published by the B.C. Ministry of Environment, Lands & Parks, 1994. The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. ALS Environmental's routine detection limit, or Limit of Reporting (LOR), for this method is 2 mg/L for a 1L sample volume. By request, a LOR of 1 mg/L is sometimes applied for this method. The 1 mg/L LOR is equal to the 99% confidence limit Method Detection Limit as defined by the US EPA. A higher degree of variability is expected at levels below 2 mg/L.

P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous

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

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

VOC7-HSMS-VA Water BTEX/MTBE/Styrene by Headspace GCMS EPA8260B, 5021

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

VOC7/VOC-SURR-MS-VA Water VOC7 and/or VOC Surrogates for Waters EPA8260B, 5021

XYLENES-CALC-VA Water Sum of Xylene Isomer Concentrations CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

10-101443

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
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 of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

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

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

10- 101443

Page 1 of 1

Report To		Report Format / Distribution		Service Request: (Rush subject to availability - Contact ALS to confirm TAT)	
Company:	SRK Consulting	Standard: ✓ Other (specify):		X	Regular (Standard Turnaround Times - Business Days)
Contact:	Arlene Laudrum	Select: PDF ✓ Excel ✓ Digital Fax			Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address:	5204, 50th Avenue, Suite 202 Yellowknife, NT	Email 1: alaudrum@srk.com			Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
		Email 2: lupinoperations@gmail.com			Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone:	867-766-6332 Fax: 866-380-3458				
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 #:	ICE015.000	(Indicate Filtered or Preserved, F/P)	
Company:	SRK Consulting	PO / AFE:	LUPIN		
Contact:	Matthew Lai	LSD:			
Address:	2200-1066				
Phone:	6046814196 Fax:	Quote #:			
Lab Work Order # (lab use only)		ALS Contact:	Brad	Sampler:	Arlene

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BETX (F)	F2-F4 (F)	hardness pH, alkalinity (F)	TSS (F)	Total oil+grease (F)	Total ammonia (F)	Total iron (F)	Total metals (F)	Nitrate/Nitrite (F)	Total phosphorus + ortho phosphorus (F)	BOD (F)		Number of Containers
	LUP-27-MTS-2011-09-20	20-09-11	9:15	water	X	X	X	X	X	X	X						9
	LUP-14-2011-09-20	20-09-11	10:30	water	X	X	X	X	X	X		X	X	X	X		11

Special Instructions / Regulations / Hazardous Details

CCME - Commercial

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
Laudrum	20/09/11	12:30		20-Sep-11	5:10 pm	8.6 °C				

SRK CONSULTING (CANADA) INC.
ATTN: Arlene Laudrum
202 - 5204 50th Avenue
Yellowknife NT X1A 1E2

Date Received: 23-SEP-11
Report Date: 07-OCT-11 17:33 (MT)
Version: FINAL

Client Phone: 867-766-6332

Certificate of Analysis

Lab Work Order #: L1062554

Project P.O. #: LUPIN & ULU
Job Reference: ICE015.000
C of C Numbers: 10-101444
Legal Site Desc:

Comments: We did not received a preserved cut for the Ammonia analysis. On receiving day, a cut was taken out of the un-preserved bottle and preserved.

Andre Langlais
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1062554-1	L1062554-2	L1062554-3		
	Description	WATER	WATER	WATER		
	Sampled Date	21-SEP-11	22-SEP-11	22-SEP-11		
	Sampled Time	15:15	12:30	13:15		
	Client ID	LUP-19	ULU-7.2011.09.22	ULU-8.2011.09.22		
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	285	595	655		
	Hardness (as CaCO3) (mg/L)	103	266	297		
	pH (pH)	4.90	7.56	7.67		
	Total Suspended Solids (mg/L)	21.9	189	3.2		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	<2.0				
	Ammonia (as N) (mg/L)	0.121 PEHT				
Total Metals	Aluminum (Al)-Total (mg/L)	2.10	0.0440	0.0511		
	Antimony (Sb)-Total (mg/L)	<0.00050	<0.00050	<0.00050		
	Arsenic (As)-Total (mg/L)	0.253	0.00268	0.00150		
	Barium (Ba)-Total (mg/L)	0.023	0.032	<0.020		
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010		
	Bismuth (Bi)-Total (mg/L)	<0.20	<0.20	<0.20		
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10		
	Cadmium (Cd)-Total (mg/L)	0.000355	<0.000017	0.000043		
	Calcium (Ca)-Total (mg/L)	17.7	87.0	98.0		
	Chromium (Cr)-Total (mg/L)	0.0019	<0.0010	<0.0010		
	Cobalt (Co)-Total (mg/L)	0.0690	<0.00030	0.00051		
	Copper (Cu)-Total (mg/L)	0.0332	0.0023	0.0018		
	Iron (Fe)-Total (mg/L)	2.23	0.128	0.113		
	Lead (Pb)-Total (mg/L)	0.00472	<0.00050	<0.00050		
	Lithium (Li)-Total (mg/L)	0.0160	<0.0050	0.0089		
	Magnesium (Mg)-Total (mg/L)	14.2	11.8	12.6		
	Manganese (Mn)-Total (mg/L)	1.19	0.0400	0.0786		
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010		
	Molybdenum (Mo)-Total (mg/L)	<0.0010	<0.0010	<0.0010		
	Nickel (Ni)-Total (mg/L)	0.176	0.0014	0.0027		
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30		
	Potassium (K)-Total (mg/L)	2.3	4.8	5.9		
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	<0.0010		
	Silicon (Si)-Total (mg/L)	7.05	3.54	2.19		
	Silver (Ag)-Total (mg/L)	<0.000020	<0.000020	<0.000020		
	Sodium (Na)-Total (mg/L)	3.7	16.4	23.1		
	Strontium (Sr)-Total (mg/L)	0.0750	0.122	0.112		
	Thallium (Tl)-Total (mg/L)	<0.00020	<0.00020	<0.00020		
	Tin (Sn)-Total (mg/L)	<0.00050	<0.00050	<0.00050		
	Titanium (Ti)-Total (mg/L)	0.025	<0.010	<0.010		
	Uranium (U)-Total (mg/L)	0.00031	<0.00020	<0.00020		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1062554-1	L1062554-2	L1062554-3		
	Description	WATER	WATER	WATER		
	Sampled Date	21-SEP-11	22-SEP-11	22-SEP-11		
	Sampled Time	15:15	12:30	13:15		
	Client ID	LUP-19	ULU-7.2011.09.22	ULU-8.2011.09.22		
Grouping	**Analyte**					
WATER						
Total Metals	Vanadium (V)-Total (mg/L)	0.0012	<0.0010	<0.0010		
	Zinc (Zn)-Total (mg/L)	0.0897	<0.0050	0.0353		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-TOT-LOW-CVAFS-VA	Water	Total Mercury in Water by CVAFS(Low)	EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-TOT-CCME-MS-VA	Water	Total Metals in Water by ICPMS (CCME)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

10-101444

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
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 of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
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- 101444

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

ALS Environmental

Page ___ of ___

Report To		Report Format / Distribution		Service Request: (Rush subject to availability - Contact ALS to confirm TAT)	
Company:	SRK Consulting	Standard: ✓	Other (specify):	X	Regular (Standard Turnaround Times - Business Days)
Contact:	Arlene Lowdrun	Select: PDF ✓	Excel ✓ Digital Fax		Priority (2-4 Business Days) - 50% surcharge - Contact ALS to confirm TAT
Address:	5204, 50th Avenue, Suite 202 Yellowknife NT	Email 1:	alowdrun@srk.com		Emergency (1-2 Business Days) - 100% Surcharge - Contact ALS to confirm TAT
Phone:	867 766 6332 Fax: 866 380 3458	Email 2:	lupinoperations@gmail.com		Same Day or Weekend Emergency - Contact ALS to confirm TAT

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 #:	ICE015-000
Company:	SRK Consulting	PO / AFE:	LUPIN x ULU
Contact:	Matthew Lai	LSD:	
Address:	2200-1066 W. Hastings Vancouver		
Phone:	Fax:	Quote #:	

Lab Work Order # (lab use only)	L1062554	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	T. Metals	pH, cond., TSS	chloride	sodium, calcium	Ammonia	alkalinity, hardness	hardness						Number of Containers
	~~SEEP-DAM2~~ · 2011-09-21	21-09-11	3:15	water	X	X			X	X	X						
	ULU-7 · 2011.09.22	22.09.11	12:30	↓	X	X	X	X									
	ULU-8 · 2011.09.27	22.09.11	1:15	↓	X	X	X	X									

L1062554-COFC

Special Instructions / Regulations / Hazardous Details

CCME - Commercial

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
A Lowdrun	27/09/11	10:30	RD	Sep 26	16:35	6 °C				

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

SRK CONSULTING (CANADA) INC.
ATTN: Arlene Laudrum
202 - 5204 50th Avenue
Yellowknife NT X1A 1E2

Date Received: 28-SEP-11
Report Date: 17-OCT-11 17:04 (MT)
Version: FINAL

Client Phone: 867-766-6332

Certificate of Analysis

Lab Work Order #: L1064676

Project P.O. #: LUPIN
Job Reference: 1CE015.000
C of C Numbers: ELG-LUP-TOM-1
Legal Site Desc:

Comments: ADDITIONAL 30-SEP-11 11:09

Andre Langlais
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1064676-1				
	Description	WATER				
	Sampled Date	27-SEP-11				
	Sampled Time	15:40				
	Client ID	LUP-14-2011-09-27				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	94.1				
	pH (pH)	7.61				
	Total Suspended Solids (mg/L)	<3.0				
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	17.8				
	Ammonia (as N) (mg/L)	0.0136				
	Nitrate (as N) (mg/L)	0.0172				
	Nitrite (as N) (mg/L)	0.0019				
	Total Kjeldahl Nitrogen (mg/L)	0.418				
	Total Nitrogen (mg/L)	0.438				
	Orthophosphate-Dissolved (as P) (mg/L)	0.0022				
	Phosphorus (P)-Total (mg/L)	0.0183				
Bacteriological Tests	Fecal Coliforms (CFU/100mL)	7				
Total Metals	Aluminum (Al)-Total (mg/L)	0.0455				
	Antimony (Sb)-Total (mg/L)	<0.00010				
	Arsenic (As)-Total (mg/L)	0.00705				
	Barium (Ba)-Total (mg/L)	0.00860				
	Beryllium (Be)-Total (mg/L)	<0.00050				
	Bismuth (Bi)-Total (mg/L)	<0.00050				
	Boron (B)-Total (mg/L)	0.040				
	Cadmium (Cd)-Total (mg/L)	<0.000050				
	Calcium (Ca)-Total (mg/L)	28.6				
	Chromium (Cr)-Total (mg/L)	<0.00050				
	Cobalt (Co)-Total (mg/L)	0.00070				
	Copper (Cu)-Total (mg/L)	0.00114				
	Iron (Fe)-Total (mg/L)	0.268				
	Lead (Pb)-Total (mg/L)	0.000071				
	Lithium (Li)-Total (mg/L)	0.0343				
	Magnesium (Mg)-Total (mg/L)	5.50				
	Manganese (Mn)-Total (mg/L)	0.0226				
	Molybdenum (Mo)-Total (mg/L)	0.000401				
	Nickel (Ni)-Total (mg/L)	0.00626				
	Phosphorus (P)-Total (mg/L)	<0.30				
	Potassium (K)-Total (mg/L)	3.2				
	Selenium (Se)-Total (mg/L)	<0.0010				
	Silicon (Si)-Total (mg/L)	0.154				
	Silver (Ag)-Total (mg/L)	<0.000010				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1064676-1				
	Description	WATER				
	Sampled Date	27-SEP-11				
	Sampled Time	15:40				
	Client ID	LUP-14-2011-09-27				
Grouping	**Analyte**					
WATER						
Total Metals	Sodium (Na)-Total (mg/L)	20.8				
	Strontium (Sr)-Total (mg/L)	0.268				
	Thallium (Tl)-Total (mg/L)	<0.00010				
	Tin (Sn)-Total (mg/L)	<0.00010				
	Titanium (Ti)-Total (mg/L)	<0.010				
	Uranium (U)-Total (mg/L)	0.000027				
	Vanadium (V)-Total (mg/L)	<0.0010				
	Zinc (Zn)-Total (mg/L)	0.0035				
Aggregate Organics	BOD (mg/L)	<5.0 PEHT				
	Oil and Grease (mg/L)	<5.0				
Volatile Organic Compounds	Benzene (mg/L)	<0.00050				
	Ethylbenzene (mg/L)	<0.00050				
	Methyl t-butyl ether (MTBE) (mg/L)	<0.00050				
	Toluene (mg/L)	<0.00050				
	ortho-Xylene (mg/L)	<0.00050				
	meta- & para-Xylene (mg/L)	<0.00050				
	Xylenes (mg/L)	<0.00075				
	Surrogate: 4-Bromofluorobenzene (SS) (%)	92.4				
	Surrogate: 1,4-Difluorobenzene (SS) (%)	107.6				
Hydrocarbons	F2 (C10-C16) (mg/L)	<0.30				
	F3 (C16-C34) (mg/L)	<0.30				
	F4 (C34-C50) (mg/L)	<0.30				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Beryllium (Be)-Total	DLA	L1064676-1
Duplicate	Bismuth (Bi)-Total	DLA	L1064676-1
Duplicate	Chromium (Cr)-Total	DLA	L1064676-1
Duplicate	Lead (Pb)-Total	DLA	L1064676-1
Duplicate	Lithium (Li)-Total	DLA	L1064676-1
Duplicate	Selenium (Se)-Total	DLA	L1064676-1
Duplicate	Silver (Ag)-Total	DLA	L1064676-1
Duplicate	Thallium (Tl)-Total	DLA	L1064676-1
Duplicate	Tin (Sn)-Total	DLA	L1064676-1
Duplicate	Vanadium (V)-Total	DLA	L1064676-1
Duplicate	Fecal Coliforms	UAL	L1064676-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis
UAL	Unreliable: Sample Age Exceeds Normal Limit

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0

This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.

ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0

This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.

BOD5-VA	Water	Biochemical Oxygen Demand- 5 day	APHA 5210 B- "BIOCHEMICAL OXYGEN DEMAND"

This analysis is carried out using procedures adapted from APHA Method 5210 B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

BOD5-VA	Water	Biochemical Oxygen Demand- 5 day	APHA 5210 B- BIOCHEMICAL OXYGEN DEMAND

This analysis is carried out using procedures adapted from APHA Method 5210 B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

F2-4-SF-FID-VA	Water	Extractable Hydrocarbons in water GCFID	CWS (CCME)

Petroleum Hydrocarbons (F2-F4) in Water

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, published by the United States Environmental Protection Agency (EPA) and the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." The procedure involves a liquid-liquid extraction of the entire water sample using dichloromethane prior to capillary column gas chromatography with flame ionization detection (GC/FID).

A silica gel cleanup procedure is applied before GC analysis, which is intended to selectively remove most naturally occurring organics.

FC-MF-YL	Water	Fecal Coliform	APHA 9222D
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method

Reference Information

6010B).

MET-TOT-LOW-MS-VA	Water	Total Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A

The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease.

P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous

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

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TN-CALC-VA	Water	Total Nitrogen (Calculation)	BC MOE LABORATORY MANUAL (2005)

Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA8260B, 5021

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

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA8260B, 5021
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA
YL	ALS ENVIRONMENTAL - YELLOWKNIFE, NW, CANADA

Chain of Custody Numbers:

Reference Information

ELG-LUP-TOM-1

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
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 of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

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

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

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COC # _____

Page 1 of 1

Report To				Report Format / Distribution				Service Requested (Rush for routine analysis subject to availability)
Company:	SRK Consulting			Standard ☐ Other				◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Arlene Laudrum			☑ PDF	☑ Excel	☐ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	5204 - 50th Avenuye, Suite 202			Email 1:	alaudrum@srk.com			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Yellowknife, NT X1A 1E2			Email 2:	lupinoperations@gmail.com			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-766-6332	Fax:	866-380-3458	Email 3:				**Analysis Request**
Invoice To	Same as Report ?	☐ Yes	☑ No	**Client / Project Information**				Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?		☐ Yes	☑ No	Job #:	1CE015.000			
Company:	SRK Consulting			PO / AFE:	Lupin			
Contact:	Matthew Lai			LSD:				
Address:	2200 - 1066 W. Hastings St., Vancouver, V6E 3X2							
Phone:	604-681-4196	Fax:	604-687-5532	Quote #:				

Lab Work Order (lab use only): L1064676

ALS Contact: | Sampler: Tom Collett

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	total metals	BOD5	TSS, pH	Faecal Coliform	Alkalinity, hardness	Total Nitrogen	Nitrite, Nitate	Oil & Grease	BETX	F2-F4	Total Phosphorus	Total Orthophosphorus	Number of Containers
	LUP-14-2011-09-			water	X	X	X	X	X	X	X	X	X	X	X	X	

L1064676-COFC

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

CCME Commercial, Freshwater Aquatic Life

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

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature: °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

GENF 18.01 Front

SRK CONSULTING
ATTN: Arlene Laudrum
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Date Received: 28-OCT-11
Report Date: 16-NOV-11 09:58 (MT)
Version: FINAL

Client Phone: 867-873-8670

Certificate of Analysis

Lab Work Order #: L1078407

Project P.O. #: NOT SUBMITTED
Job Reference: 1CE015.000
C of C Numbers: 1 of 1
Legal Site Desc:

JUDY BETHUNE
Supervisor

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1078407-1 LUP-01-2011-10-24							
Sampled By: CLIENT on 24-OCT-11							
Matrix: SURFACE WATER							
Hardness							
Dissolved Metals in Water by ICPOES							
Calcium (Ca)-Dissolved	1.34		0.50	mg/L		07-NOV-11	R2282828
Magnesium (Mg)-Dissolved	0.63		0.10	mg/L		07-NOV-11	R2282828
Hardness (from Dissolved Ca and Mg)							
Hardness (as CaCO3)	5.9		1.3	mg/L		07-NOV-11	
Total Metals - CCME							
Mercury (Hg) - Total							
Mercury (Hg)-Total	<0.00010		0.00010	mg/L		02-NOV-11	R2279951
Total Metals in Water by ICPMS (Low)							
Aluminum (Al)-Total	0.030		0.010	mg/L		04-NOV-11	R2281671
Antimony (Sb)-Total	<0.00040		0.00040	mg/L		04-NOV-11	R2281671
Arsenic (As)-Total	0.00090		0.00040	mg/L		04-NOV-11	R2281671
Barium (Ba)-Total	0.0030		0.0030	mg/L		04-NOV-11	R2281671
Beryllium (Be)-Total	<0.0010		0.0010	mg/L		04-NOV-11	R2281671
Boron (B)-Total	<0.050		0.050	mg/L		04-NOV-11	R2281671
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		04-NOV-11	R2281671
Chromium (Cr)-Total	<0.0050		0.0050	mg/L		04-NOV-11	R2281671
Cobalt (Co)-Total	<0.0020		0.0020	mg/L		04-NOV-11	R2281671
Copper (Cu)-Total	0.0015		0.0010	mg/L		04-NOV-11	R2281671
Lead (Pb)-Total	0.00028		0.00010	mg/L		04-NOV-11	R2281671
Lithium (Li)-Total	<0.010		0.010	mg/L		04-NOV-11	R2281671
Molybdenum (Mo)-Total	<0.0050		0.0050	mg/L		04-NOV-11	R2281671
Nickel (Ni)-Total	0.0024		0.0020	mg/L		04-NOV-11	R2281671
Selenium (Se)-Total	<0.00040		0.00040	mg/L		04-NOV-11	R2281671
Silver (Ag)-Total	<0.00010		0.00010	mg/L		04-NOV-11	R2281671
Thallium (Tl)-Total	<0.00010		0.00010	mg/L		04-NOV-11	R2281671
Tin (Sn)-Total	<0.050		0.050	mg/L		04-NOV-11	R2281671
Titanium (Ti)-Total	<0.0010		0.0010	mg/L		04-NOV-11	R2281671
Uranium (U)-Total	<0.00010		0.00010	mg/L		04-NOV-11	R2281671
Vanadium (V)-Total	<0.0010		0.0010	mg/L		04-NOV-11	R2281671
Zinc (Zn)-Total	0.0151		0.0040	mg/L		04-NOV-11	R2281671
Total Metals in Water by ICPOES (Low)							
Calcium (Ca)-Total	1.34		0.50	mg/L		03-NOV-11	R2280810
Iron (Fe)-Total	0.071		0.010	mg/L		03-NOV-11	R2280810
Magnesium (Mg)-Total	0.64		0.10	mg/L		03-NOV-11	R2280810
Manganese (Mn)-Total	0.0036		0.0020	mg/L		03-NOV-11	R2280810
Potassium (K)-Total	0.48		0.10	mg/L		03-NOV-11	R2280810
Sodium (Na)-Total	<1.0		1.0	mg/L		03-NOV-11	R2280810
Miscellaneous Parameters							
Total Suspended Solids	<3.0		3.0	mg/L		01-NOV-11	R2279261
L1078407-2 LSL-2011-10-24							
Sampled By: CLIENT on 24-OCT-11							
Matrix: SURFACE WATER							
Hardness							
Dissolved Metals in Water by ICPOES							
Calcium (Ca)-Dissolved	29.2		0.50	mg/L		11-NOV-11	R2284934
Magnesium (Mg)-Dissolved	6.24		0.10	mg/L		11-NOV-11	R2284934
Hardness (from Dissolved Ca and Mg)							
Hardness (as CaCO3)	98.7		1.3	mg/L		11-NOV-11	
Total Metals - CCME							
Mercury (Hg) - 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
L1078407-2 LSL-2011-10-24							
Sampled By: CLIENT on 24-OCT-11							
Matrix: SURFACE WATER							
Mercury (Hg) - Total							
Mercury (Hg)-Total	<0.00010		0.00010	mg/L		08-NOV-11	R2283442
Total Metals in Water by ICPMS (Low)							
Aluminum (Al)-Total	0.179		0.010	mg/L		31-OCT-11	R2279010
Antimony (Sb)-Total	<0.00040		0.00040	mg/L		31-OCT-11	R2279010
Arsenic (As)-Total	0.00508		0.00040	mg/L		31-OCT-11	R2279010
Barium (Ba)-Total	0.0107		0.0030	mg/L		31-OCT-11	R2279010
Beryllium (Be)-Total	<0.0010		0.0010	mg/L		31-OCT-11	R2279010
Boron (B)-Total	0.051		0.050	mg/L		31-OCT-11	R2279010
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		31-OCT-11	R2279010
Chromium (Cr)-Total	<0.0050		0.0050	mg/L		31-OCT-11	R2279010
Cobalt (Co)-Total	0.0028		0.0020	mg/L		31-OCT-11	R2279010
Copper (Cu)-Total	0.0022		0.0010	mg/L		31-OCT-11	R2279010
Lead (Pb)-Total	0.00011		0.00010	mg/L		31-OCT-11	R2279010
Lithium (Li)-Total	0.033		0.010	mg/L		31-OCT-11	R2279010
Molybdenum (Mo)-Total	<0.0050		0.0050	mg/L		31-OCT-11	R2279010
Nickel (Ni)-Total	0.0112		0.0020	mg/L		31-OCT-11	R2279010
Selenium (Se)-Total	<0.00040		0.00040	mg/L		31-OCT-11	R2279010
Silver (Ag)-Total	<0.00010		0.00010	mg/L		31-OCT-11	R2279010
Thallium (Tl)-Total	<0.00010		0.00010	mg/L		31-OCT-11	R2279010
Tin (Sn)-Total	<0.050		0.050	mg/L		31-OCT-11	R2279010
Titanium (Ti)-Total	<0.0010		0.0010	mg/L		03-NOV-11	R2280781
Uranium (U)-Total	<0.00010		0.00010	mg/L		31-OCT-11	R2279010
Vanadium (V)-Total	<0.0010		0.0010	mg/L		31-OCT-11	R2279010
Zinc (Zn)-Total	0.0088		0.0040	mg/L		31-OCT-11	R2279010
Total Metals in Water by ICPOES (Low)							
Calcium (Ca)-Total	30.0		0.50	mg/L		01-NOV-11	R2279164
Iron (Fe)-Total	0.486		0.010	mg/L		01-NOV-11	R2279164
Magnesium (Mg)-Total	6.44		0.10	mg/L		01-NOV-11	R2279164
Manganese (Mn)-Total	0.0667		0.0020	mg/L		01-NOV-11	R2279164
Potassium (K)-Total	3.24		0.10	mg/L		01-NOV-11	R2279164
Sodium (Na)-Total	20.0		1.0	mg/L		01-NOV-11	R2279164
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	12.8		5.0	mg/L		31-OCT-11	R2277365
Ammonia (as N)	<0.050		0.050	mg/L		01-NOV-11	R2279111
Oil and Grease	<1.0		1.0	mg/L		08-NOV-11	R2283023
Cyanide, Total	<0.0050		0.0050	mg/L	08-NOV-11	09-NOV-11	R2283656
Total Suspended Solids	<3.0		3.0	mg/L		01-NOV-11	R2279261
BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
Toluene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
Ethylbenzene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
o-Xylene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
m+p-Xylene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
F1(C6-C10)	<0.10		0.10	mg/L	30-OCT-11	30-OCT-11	R2277861
F1-BTEX	<0.10		0.10	mg/L	30-OCT-11	30-OCT-11	R2277861
Xylenes	<0.00071		0.00071	mg/L	30-OCT-11	30-OCT-11	R2277861
Total Nitrogen							
Nitrate as N by IC							
Nitrate (as N)	<0.050		0.050	mg/L		31-OCT-11	R2278614
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.071		0.071	mg/L		01-NOV-11	

* 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
L1078407-2 LSL-2011-10-24							
Sampled By: CLIENT on 24-OCT-11							
Matrix: SURFACE WATER							
Nitrite as N by IC							
Nitrite (as N)	<0.050		0.050	mg/L		31-OCT-11	R2278614
TKN in Water by Colour							
Total Kjeldahl Nitrogen	0.30		0.20	mg/L	04-NOV-11	04-NOV-11	R2281279
Total Nitrogen (Calculation)							
Total Nitrogen	0.30		0.21	mg/L		04-NOV-11	
L1078407-3 USL-2011-10-24							
Sampled By: CLIENT on 24-OCT-11							
Matrix: SURFACE WATER							
Total Metals - CCME							
Mercury (Hg) - Total							
Mercury (Hg)-Total	<0.00010		0.00010	mg/L		15-NOV-11	R2286706
Total Metals in Water by ICPMS (Low)							
Aluminum (Al)-Total	0.064		0.010	mg/L		14-NOV-11	R2286082
Antimony (Sb)-Total	<0.00040		0.00040	mg/L		14-NOV-11	R2286082
Arsenic (As)-Total	0.00872		0.00040	mg/L		14-NOV-11	R2286082
Barium (Ba)-Total	0.0177		0.0030	mg/L		14-NOV-11	R2286082
Beryllium (Be)-Total	<0.0010		0.0010	mg/L		14-NOV-11	R2286082
Boron (B)-Total	<0.050		0.050	mg/L		14-NOV-11	R2286082
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		14-NOV-11	R2286082
Chromium (Cr)-Total	<0.0050		0.0050	mg/L		14-NOV-11	R2286082
Cobalt (Co)-Total	0.0025		0.0020	mg/L		14-NOV-11	R2286082
Copper (Cu)-Total	0.0033		0.0010	mg/L		14-NOV-11	R2286082
Lead (Pb)-Total	0.00017		0.00010	mg/L		14-NOV-11	R2286082
Lithium (Li)-Total	<0.010		0.010	mg/L		14-NOV-11	R2286082
Molybdenum (Mo)-Total	<0.0050		0.0050	mg/L		14-NOV-11	R2286082
Nickel (Ni)-Total	0.0165		0.0020	mg/L		14-NOV-11	R2286082
Selenium (Se)-Total	<0.00040		0.00040	mg/L		14-NOV-11	R2286082
Silver (Ag)-Total	<0.00010		0.00010	mg/L		14-NOV-11	R2286082
Thallium (Tl)-Total	<0.00010		0.00010	mg/L		14-NOV-11	R2286082
Tin (Sn)-Total	<0.050		0.050	mg/L		14-NOV-11	R2286082
Titanium (Ti)-Total	<0.0010		0.0010	mg/L		14-NOV-11	R2286082
Uranium (U)-Total	<0.00010		0.00010	mg/L		14-NOV-11	R2286082
Vanadium (V)-Total	<0.0010		0.0010	mg/L		14-NOV-11	R2286082
Zinc (Zn)-Total	0.0142		0.0040	mg/L		14-NOV-11	R2286082
Total Metals in Water by ICPOES (Low)							
Calcium (Ca)-Total	20.5		0.50	mg/L		04-NOV-11	R2281608
Iron (Fe)-Total	0.261		0.010	mg/L		04-NOV-11	R2281608
Magnesium (Mg)-Total	5.87		0.10	mg/L		04-NOV-11	R2281608
Manganese (Mn)-Total	0.0368		0.0020	mg/L		04-NOV-11	R2281608
Potassium (K)-Total	2.42		0.10	mg/L		04-NOV-11	R2281608
Sodium (Na)-Total	7.7		1.0	mg/L		04-NOV-11	R2281608
Miscellaneous Parameters							
Ammonia (as N)	0.056		0.050	mg/L		01-NOV-11	R2279111
BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
Toluene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
Ethylbenzene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
o-Xylene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
m+p-Xylene	<0.00050		0.00050	mg/L	30-OCT-11	30-OCT-11	R2277861
F1(C6-C10)	<0.10		0.10	mg/L	30-OCT-11	30-OCT-11	R2277861
F1-BTEX	<0.10		0.10	mg/L	30-OCT-11	30-OCT-11	R2277861

* 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
L1078407-3 USL-2011-10-24							
Sampled By: CLIENT on 24-OCT-11							
Matrix: SURFACE WATER							
BTEX and F1 (C6-C10)							
Xylenes	<0.00071		0.00071	mg/L	30-OCT-11	30-OCT-11	R2277861
L1078407-4 LUP-01-2011-10-26							
Sampled By: CLIENT on 28-OCT-11 @ 11:00							
Matrix: SURFACE WATER							
Miscellaneous Parameters							
Fecal Coliforms	<1		1	CFU/100mL		28-OCT-11	R2278290
L1078407-5 LSL-2011-10-26							
Sampled By: CLIENT on 28-OCT-11 @ 11:20							
Matrix: SURFACE WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		30-OCT-11	R2281186
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		31-OCT-11	R2279020
Fecal Coliforms	<1		1	CFU/100mL		28-OCT-11	R2278290
Nitrate and Nitrite (as N)	0.0546		0.0060	mg/L		31-OCT-11	R2278698
Phosphorus (P)-Total	<0.020		0.020	mg/L	07-NOV-11	07-NOV-11	R2282726
pH	7.00		0.10	pH		31-OCT-11	R2277365
F2, F3, F4							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-NOV-11	01-NOV-11	R2280196
F3 (C16-C34)	<0.25		0.25	mg/L	01-NOV-11	01-NOV-11	R2280196
F4 (C34-C50)	<0.25		0.25	mg/L	01-NOV-11	01-NOV-11	R2280196
L1078407-6 USL-2011-10-26							
Sampled By: CLIENT on 28-OCT-11 @ 11:40							
Matrix: SURFACE WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	<2.0		2.0	mg/L		30-OCT-11	R2281186
Fecal Coliforms	7		1	CFU/100mL		28-OCT-11	R2278290
pH	7.00		0.10	pH		31-OCT-11	R2277365
F2, F3, F4							
F2 (>C10-C16)	<0.25		0.25	mg/L	01-NOV-11	01-NOV-11	R2280196
F3 (C16-C34)	<0.25		0.25	mg/L	01-NOV-11	01-NOV-11	R2280196
F4 (C34-C50)	<0.25		0.25	mg/L	01-NOV-11	01-NOV-11	R2280196
L1078407-7 KITCHEN-2011-10-26							
Sampled By: CLIENT on 28-OCT-11 @ 12:00							
Matrix: WATER							
Miscellaneous Parameters							
Fecal Coliforms	<1		1	CFU/100mL		28-OCT-11	R2278290
L1078407-8 HOUSE-2011-10-26							
Sampled By: CLIENT on 28-OCT-11 @ 10:00							
Matrix: WATER							
Miscellaneous Parameters							
Fecal Coliforms	<1		1	CFU/100mL		28-OCT-11	R2278290

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

Reference Information

Qualifiers for Individual Samples Listed:

Sample Numbe	Client ID	Qualifier	Description
L1078407-5	LSL-2011-10-26	SP	TP - Sample was Preserved at the laboratory

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-ED	Water	Alkalinity, Total	APHA 2320 B-Auto-Pot. Titration
BOD-ED	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode
BTX,F1-ED	Water	BTEX and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN Cyanide
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
ETL-HARDNESS-DIS-ED	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
F2,F3,F4-ED	Water	F2, F3, F4	EPA 3510/CCME PHC CWS-GC-FID
FC-MF-YL	Water	Fecal Coliform	APHA 9222D
HG-T-CVAA-ED	Water	Mercury (Hg) - Total	EPA 245.7 / EPA 245.1
MET-D-ICP-ED	Water	Dissolved Metals in Water by ICPOES	APHA 3120 B-ICP-OES
MET-T-L-ICP-ED	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-T-L-MS-ED	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
N-T-CALC-ED	Water	Total Nitrogen (Calculation)	APHA 4500 N-Calculated
Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]			
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+NO3-L-CFA-ED	Water	Nitrite & Nitrate in Water by Colour	APHA 4500 NO3-F
This analysis is carried out using procedures adapted from APHA Method 4500 NO3-F "Automated Cadmium Reduction Method".			
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-ED	Water	Oil and Grease-Gravimetric	APHA 5520 G 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-ED	Water	pH	APHA 4500 H-Electrode
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)			
PO4-DO-COL-ED	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
TKN-CFA-ED	Water	TKN in Water by Colour	APHA 4500-NORG (TKN)
This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 celcius with analysis using an automated colourimetric finish.			

** 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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
VA		ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA	
YL		ALS ENVIRONMENTAL - YELLOWKNIFE, NW, CANADA	

Chain of Custody Numbers:

1 of 1

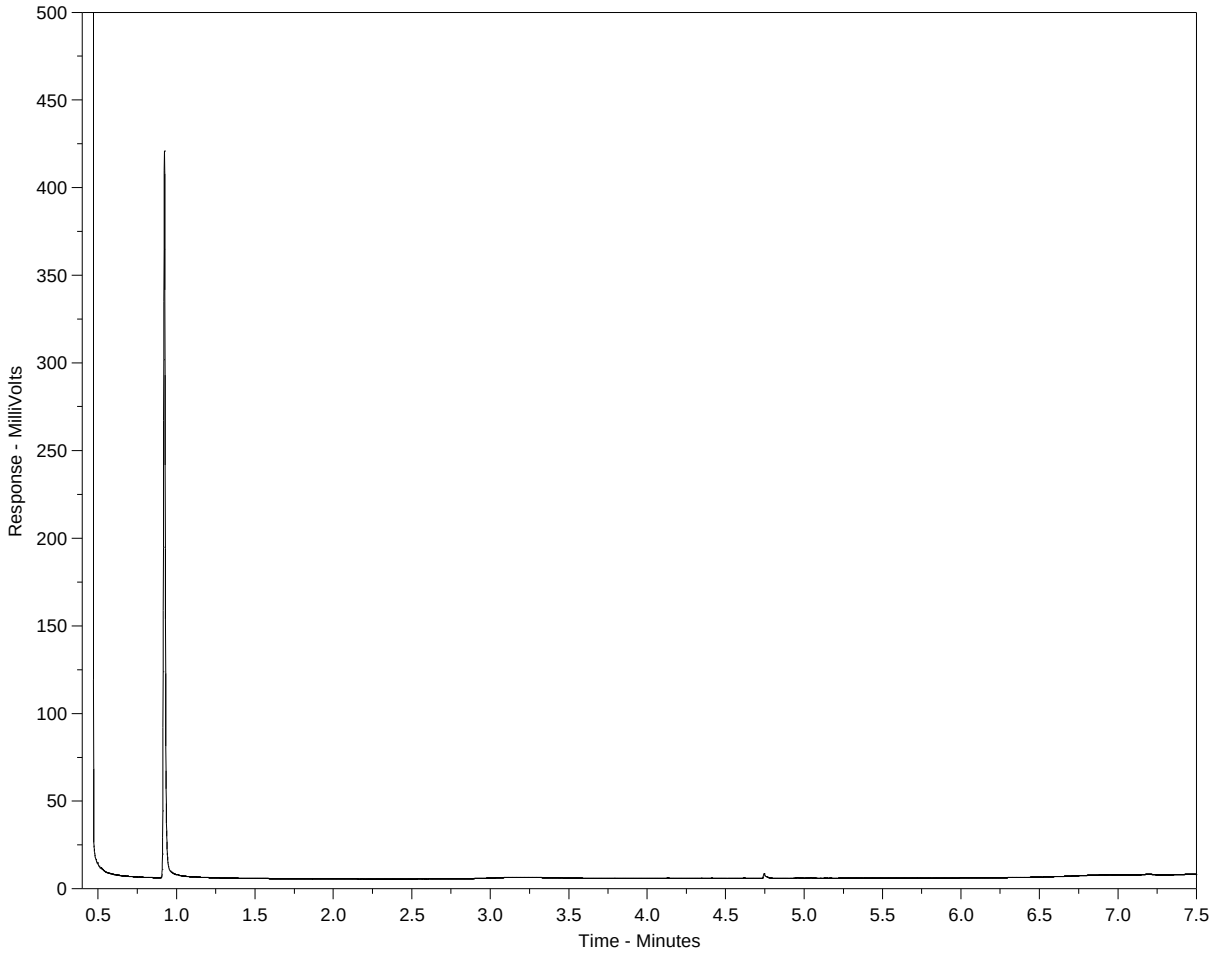
GLOSSARY OF REPORT TERMS

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

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

Hydrocarbon Distribution Report

ALS Sample ID: **L1078407-5**
Client ID: **LSL-2011-10-26**



<-nC10----------C11----------nC16----------C30--nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

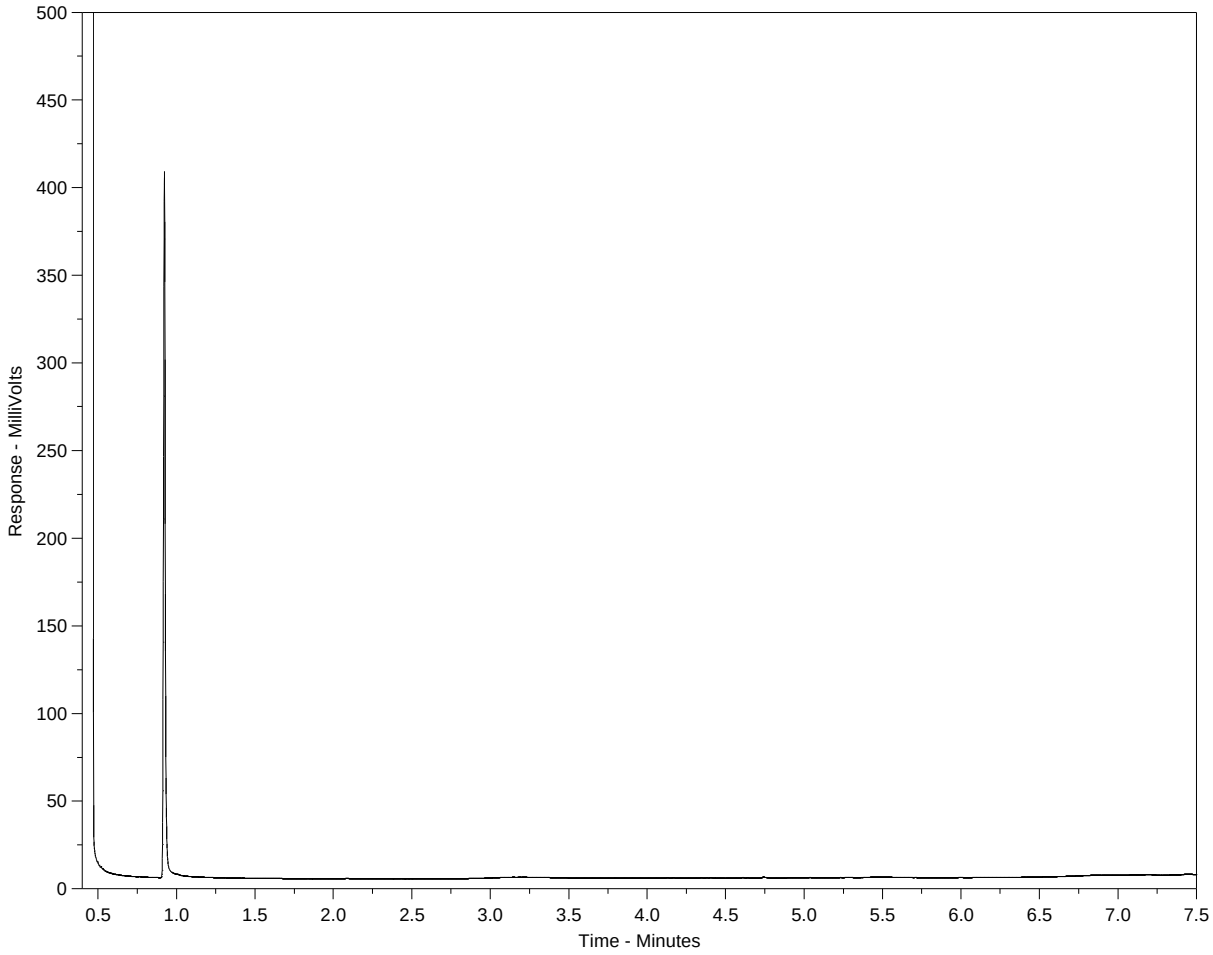
The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified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

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

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

Hydrocarbon Distribution Report

ALS Sample ID: **L1078407-6**
Client ID: **USL-2011-10-26**



<-nC10----------C11----------nC16----------C30--nC34----------nC50->
<----------Gasoline----------> <----------Heavy Oils---------->
|----------Diesel----------|

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

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

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

SRK CONSULTING
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Yellowknife NT X1A 1E2

Date Received: 06-NOV-11
Report Date: 15-NOV-11 08:50 (MT)
Version: FINAL

Client Phone: 867-873-8670

Certificate of Analysis

Lab Work Order #: L1081603

Project P.O. #: NOT SUBMITTED
Job Reference: 1CE15.000
C of C Numbers: 20111105
Legal Site Desc:

JUDY BETHUNE
Supervisor

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1081603-1 LSL-2011-11-05							
Sampled By: TOM COLLETT on 05-NOV-11 @ 14:30							
Matrix: 1							
Miscellaneous Parameters							
Oil and Grease	<1.0		1.0	mg/L		09-NOV-11	R2284281
BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
Toluene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
Ethylbenzene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
o-Xylene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
m+p-Xylene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
F1(C6-C10)	<0.10		0.10	mg/L	07-NOV-11	07-NOV-11	R2282340
F1-BTEX	<0.10		0.10	mg/L	07-NOV-11	07-NOV-11	R2282340
Xylenes	<0.00071		0.00071	mg/L	07-NOV-11	07-NOV-11	R2282340
L1081603-2 USL-2011-11-05							
Sampled By: TOM COLLETT on 05-NOV-11 @ 14:45							
Matrix: 1							
Miscellaneous Parameters							
Oil and Grease	<1.0		1.0	mg/L		09-NOV-11	R2284281
BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
Toluene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
Ethylbenzene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
o-Xylene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
m+p-Xylene	<0.00050		0.00050	mg/L	07-NOV-11	07-NOV-11	R2282340
F1(C6-C10)	<0.10		0.10	mg/L	07-NOV-11	07-NOV-11	R2282340
F1-BTEX	<0.10		0.10	mg/L	07-NOV-11	07-NOV-11	R2282340
Xylenes	<0.00071		0.00071	mg/L	07-NOV-11	07-NOV-11	R2282340

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTX,F1-ED	Water	BTEX and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
OGG-ED	Water	Oil and Grease-Gravimetric	APHA 5520 G HEXANE MTBE EXT. GRAVIME

** 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

Chain of Custody Numbers:

20111105

GLOSSARY OF REPORT TERMS

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

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

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # 20111105

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Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	SRK Consulting	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Arlene Laudrum	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	5204 - 50th Avenue, Suite 202	Email 1: alaudrum@srk.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Yellowknife, NT	Email 2: lupinoperations@gmail.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-766-6332 Fax: 866-380-3458	Email 3:	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: 1CE015.000	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:	SRK Consulting	PO / AFE:	
Contact:	Matthew Lai	LSD:	
Address:	2200 - 1066 W Hastings St, Vancouver, V6E 3X2	account 13041	
Phone:	604-681-4196 Fax: 604-687-5532	Quote #:	
Lab Work Order # (lab use only)	L1081603	ALS Contact:	Sampler: Tom Collett

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BETX P	Oil and Grease P										Number of Containers
	LSL-2011-11-05	05-Nov-11	1430 hrs.	Surface Water	X	X										4
	USL-2011-11-05	05-Nov-11	1445 hrs.	Surface Water	X	X										4

L1081603-COFC

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

CCME - FWAL, there is an extra bottle for F2-F4 collected Oct 24 - it's a spare if needed.

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

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Tom Collett	5-Nov-11	1600 hrs.		6-Nov-11	10:45	3.1 °C				

Appendix 2 2011 Inspection Report

Indian and Northern Affairs Canada **Affaires Indiennes et du Nord Canada**

WATER USE INSPECTION FORM

Date: July 9,2010	**Licensee Rep.** (Name/Title)**:** TED MURARO OPERATIONS MANAGER – CANADA MINERALS AND METALS GROUP
Licensee: Elgin Mining Inc. Suite 200 - 83 Younge St. Toronto, Ontario 416 640 1930	**Licence No.: 2AM-LUP0914**

WATER SUPPLY

Source(s): Contwoyto Lake	**Quantity used: Unknown**
Owner:/Operator: Elgin Mining Inc.	

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Intake Facilities: NI	**Storage Structure:** NI	**Treatment System:** NI	**Chemical Storage:** NI
Flow Meas. Device: NI	**Conveyance Lines:** A	**Pumping Stations:** NI	**Screen: U**

Comments: The Water pumping station as well as the mine-proper facilities were either locked or not entered during the period of the Inspection. The pumping station (off line) was not inspected. Water samples were collected from the shoreline adjacent to the intake pipe.

At the float dock a number of barrels marked WSC- were noted on the shoreline of the lake (within 30 meters of water) . One barrel was in fact in the lake and two were upside down with the bungs facing the water. The fuel supplier was contacted by MMG staff and evidence suggests the barrels belong to Water Survey Canada. These Barrels are to be removed and placed outside the 30 meter set back.

WASTE DISPOSAL

Sewage: **Sewage Treatment System** (Prim./Sec/Ter.)**:Primary**

Natural Water Body: No	**Continuous Discharge** (land or water)**: None**	
Seasonal Discharge: None	**Wetlands Treatment:** N	**Trench:** None

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Discharge Quality: UK	**Decant Structure:** NI	**Erosion:** NI
Discharge Meas. Device: NI	**Dyke Inspection:** NI	**Seepages:** None
Dams, Dykes: NI	**Freeboard:** NI	**Spills:** None
Construction: NI	**O&M Plan:** NI	**A&R Plan:** None
Periods of Discharge: None	**Effluent Discharge Rate:** Unknown	

Comments: Currently the Lupin Mine site is unoccupied; sewage wastes are not being produced. The site is currently classed as care and maintenance. The Licensee will be required to address any deficiencies in the discharge location upon reactivation of the site.

Solid Waste: Burn and bury area noted on site **Owner/Operator: Elgin Mining Inc.**

Landfill: Y	**Burn & Landfill:** y	**Other:**

Comments: Currently the Lupin Mine site is unoccupied, new waste materials are not being produced. The tailing containment areas on site require continuing maintenance. During the inspection a number of locations had visual or evidence of standing/ ponded water and discolorations in the color of cover materials.

Other sections within the trailing area had low water levels and approximately 5-10 hectars of exposed tailings. This must be addressed by the operator during this season.

Water levels at the J Dam were also noted as not having the required 1 m of free board. Erosion and sloughing of the sides of the dam were also documented.

FUEL STORAGE: **Owner/Operator: Elgin Mining Inc.**

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Berms & Liners: NI	**Water within Berms: A**	**Evidence of Leaks: NI**
Drainage Pipes: U	**Pump Station & Catchments Berm: NI**	
Pipeline Condition: U	**Condition of Tanks: Unknown- Tanks to not appear to be registered.**	

Comments: Currently, the Lupin Mine site is unoccupied. It is estimated that over 1 million litres of fuel remains on site. There is no evidence that a leak detection system or plan for continuing monitoring is in place at this time. It does not appear that the tanks have been registered under Environment Canada's Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations as no registration numbers or signage were visible.

Barrels of unknown origin and contents are also noted throughout the site.

Waste Oil Storage: a large number of waste oil and other barrels are noted within the secondary containment area South of the main tank farm.

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected	**Owner /Operator:** Samples collected by Licensee to be submitted with annual report
3	**INAC:** Potable water, Water from Pond 2 , Water from the discharge of Pond 2

Signs Posted	**SNP:** Unknown	**Warning:** None
Records & Reporting: Annual report for 2010 noted as submitted.		
Geotechnical Inspection: N/A		

Non-Compliance of Act or Licence:

The Licensee is required to adhere to the current terms and conditions of the issued license.

- Subject to Part A Section 12 of the issued license (2AM-LUP0914) the Licensee will submit to the Nunavut Water Board and the Inspector within 30 days of receipt of the Inspection Report Form a Fuel Monitoring Plan to address fuel storage on site. Once approved by the Board the Licensee will implement this plan as approved.

- The Licensee will within 60 days of receipt of the Inspection Report Form undertake such measures as are required to address high water levels at Dam J and to cover the exposed tailings in the pond south east of Dam J.

The Licensee (Elgin Mining Inc.) is encourage to contact the Inspector to facilitate compliance with the issued license including the requirement for site monitoring and the schedule of site inspections as are detailed in the issued license.

A.Keim
Inspector's Name

Sent by E-mail (On original in file)
Inspector's Signature

Cc:
Bernie MacIsaac- A/Manager Field Operations
Phyllis Beaulieu – Manager Licensing- Nunavut Water Board

Contact Information:

Andrew Keim
Water Resources Officer
Building 918 – Box 100
Iqaluit, Nunavut XOA OHO
867-975-4289 Ph
867-979-6445 Fx
Andrew.Keim@ainc-inac.gc.ca

Appendix 3 Spill Contingency Plan

Appendix 4 Interim Abandonment and Reclamation Plan

Appendix 5 Care and Maintenance Plan

Appendix 6 Inuktitut Translation: Annual Report Summary

Note: Translations are underway and will be forwarded to the Nunavut Water Board upon completion.