

LUPIN MINES INCORPORATED
(subsidiary of Elgin Mining Inc.)

08 November 2011

Ms. Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
GJOA HAVEN NU
X0B 1J0

Dear Ms. Beaulieu

RE: Monthly Report for October 2011
Lupin Mine, Nunavut, License Number 2AM-LUP0914

Phyllis, we had 347 man days for the month of October. They were accommodated in the 1300 wing of the residential complex, located on the south shore of Contwoyto Lake. The guest house (cabin) was utilized as an office space and provided accommodation for one person part time. Domestic water was drawn from Contwoyto Lake and transported by truck to the freshwater storage tank adjacent to the 1300 wing for dishwashing and sanitary purposes. An estimated 9,500 Litres (9.5 m³) of water from Contwoyto Lake was used for domestic use.

Repairs and maintenance on the Bulk Fuel Storage Facilities were undertaken in October. Nunavut Construction Limited (NCL) was retained to inspect the systems and conduct repairs and maintenance. Their mechanical engineer was on site between October 14 and 17 to inspect the systems and develop a priority list for addressing those components that represented the highest risk. Two NCL technicians were on site conducting repairs and maintenance to the Main Tank Farm and Satellite Tank Farm between October 21 and 28. Tanks as selected by the engineer were leak tested, a leaky valve was replaced and the fuel in the Main Tank Farm consolidated into five tanks. Tanks within the Main Tank System that were no longer active were disconnected from the common header and blind flanges were installed. Inactive fuel lines were drained. The active fuel lines were pressure tested and passed. The diesel fuelling pump at the Satellite Tank System was recommissioned. A remedial plan to address future monitoring, maintenance and system upgrades is being developed. The plan will be provided to the Board, the Inspector and Environment Canada by December 20.

Recyclable glass, plastic and drink carton waste was shipped off site for disposal at facilities in Yellowknife. The remaining domestic garbage was incinerated.

Station LUP-01

Samples of the fresh water supply, Station LUP-01, were taken on October 24, 2011, a scheduled plane day. The plane was subsequently cancelled. The sample for faecal coliform was collected again on the next plane day, October 28, 2011 due to the brief holding time for this parameter. Field readings are provided in the table below. The analytical results will be included in next month's report.

Table 1 – Summary of Field Readings – Freshwater Intake - LUP 01- October 2011

Parameter	Limit	October 24, 2011	October 28, 2011
Field pH	6.5 to 9.5	6.52	6.79
Conductivity	NA	9 $\mu\text{S}/\text{cm}$	4 $\mu\text{S}/\text{cm}$
Temperature	NA	1 °C	1 °C

Sewage and graywater were collected in the sewage tank adjacent to the 1300 wing and trucked to the Upper Sewage Lake for direct discharge. Greywater from the guest house reported to a leaching pit, excavated adjacent to the house. No sanitary waste was generated in the guest house.

Station LUP-10

There was no discharge from the Tailings Containment Pond 2, Station LUP-10. The annual geotechnical inspection was conducted September 21 and 22. The inspection report will be issued to the Water Board by November 21 (within 60 days following the inspection).

Station LUP-14

Discharge from the Lower Sewage Lake, Station LUP-14, commenced September 23. An inspection of dikes within the Sewage Lake System was conducted by a Geotechnical Engineer on September 22, following the annual Tailings Containment Area inspection. The inspection revealed that internal dikes within the Sewage Lake System showed signs of stress and slope instability. The perimeter containment dike of the Lower Sewage Lake appeared to be in stable condition however, breaching water from the interior dikes could potentially overtop and breach the Lower Sewage Lake dike. In addition, the Lower Sewage Lake did not appear to have significant capacity for storm events and/or spring freshette. The lowering of the lake levels was recommended. Discharge commenced September 23 and ceased October 10 when the siphons started to freeze. The estimated discharge for the month of October was 60,000 m³. An estimated 42,000 m³ was discharged in September.

At the time of discharge from the Sewage Lakes Disposal Facility 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 Tailings Containment Area. Subsequent to the discharge of the water Elgin Mining Inc. reviewed the Lupin Tailings Containment Area Discharge Procedure Manual prepared by the former owner, MMG Canada Operations Inc., and noted that previously the Inspector was notified ten (10) days prior to any planned discharge from the Lower Sewage Lake. A call to the AANDC Water Resources Inspector on October 27 has confirmed that Part E Item 4 applies to all planned discharges.

Total flow for the seasonal discharge was approximately 102,000 m³, based on an average rate of 6,000 m³/day. A review of historical flow records indicated that the average daily rate of flow from a single 8" siphon installed at the Lower Sewage Lake dike was 6000 m³/day when the water levels were high. The discharge volume estimate has been verified by calculating the volume based on the elevation change and the underlying topography of the water bodies. A flow meter will be calibrated and installed prior to the 2012 seasonal discharge.

Table 2 below provides the water sample results received to date. Water samples were collected prior to the discharge, the first flight day after discharge commenced and below ice following discharge. The results of chemical analyses received to date are attached for reference.

Table 2 – Summary of Analytical Results – Sewage Lakes Disposal – LUP-14 - October 2011

Parameter	Limits	Concentration			
		20/09/2011 LUP-14 Intact	27/09/2011 LUP-14 Discharge	24/10/2011 LUP-14 Intact	28/10/2011 LUP-14 Intact
Total Arsenic	0.05 mg/L	<0.00050	0.00705	0.00508*	
Total Copper	0.20 mg/L	0.0057	0.00114	0.0022*	
Total Lead	0.05 mg/L	<0.00050	0.000071	0.00011*	
Total Nickel	0.30 mg/L	0.115	0.00626	0.0112*	
Total Zinc	0.50 mg/L	0.687	0.0035	0.0088*	
Total Suspended Solids	35 mg/L	13.2	<3.0	Pending	
BOD ₅	30 mg/L	<5	<5		<2.0*
Faecal Coliform	1000 colony forming units/100ml	NA	7		Pending
Oil and Grease	Visual sheen	<1.0	<5	Pending	Pending
Field pH	6.5 to 9.5	NA	NA	6.70	6.48
Lab pH	6.5 to 9.5	6.58	7.61		7.00*

* Preliminary results only

Station LUP-27

Discharge from the Bulk Fuel Storage Facilities at LUP-27 was restricted to the Main Tank Farm. Samples were collected from the three tank farms on August 14, 2011 to determine if water in the secondary containments could be discharged to the environment. The water that collected in the Satellite Tank Farm did not meet discharge quality limits and it was pumped into an empty portable storage tank and 205 Litre drums. Sixteen 205 litre drums of contaminated water were shipped off-site for treatment in Yellowknife. Approximately 35,000 litres of contaminated water is currently held in an 82,000 litre skid mounted API 12F rated tank. The contaminated water storage tank is sound and it was built in 1988 and taken out of service prior to the coming into force of the June 12, 2008 *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulation*. A procedure to treat the contaminated water in storage at site and future fuel contaminated water is being developed. The water in the power plant tank farm will need to be discharged in the spring. There were not enough operational pumps to draw down the water in all three tank farms prior to winter freeze up. Elgin Mining Inc. mobilized an additional pump to site on September 23 to assist with the discharge from the bulk fuel storage facilities. All water within tank farm secondary containment berms will be tested to determine if it meets discharge limits and the Inspector will be provided the analytical results ten (10) days prior to future discharges.

Table 3 below provides the sample results. Water samples were collected prior to the discharge and during discharge from the main tank farm. The results of chemical analyses received to date are attached for reference.

Table 3 – Summary of Analytical Results – Bulk Fuel Storage Systems – LUP-27 - October 2011

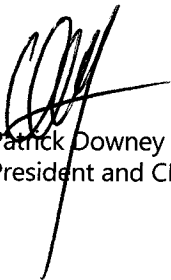
Parameter	Limits		Concentrations			
	Maximum Average	Maximum Grab Sample	14/08/2011 Main Tank Farm	14/08/2011 Power Plant Tank Farm	14/08/2011 Satellite Tank Farm	20/09/2011 Main Tank Farm
pH	6.0 to 9.0		7.48	7.77	4.83**	7.66
Total Suspended Solids	15 mg/L	30 mg/L	<3.0	3.6	39.3**	13.2
Oil and Grease	5.0 mg/L and no Visual sheen	10 mg/L	<1.0	<1.0	13.8**	<1.0
Total Ammonia	2.0 mg/L	4.0 mg/L	0.0156	0.0074	0.47	<0.0050
Total Lead	0.01 mg/L	0.02 mg/L	<0.050	<0.050	<0.050	0.000643
Benzene	0.37 mg/L		<0.00050	<0.00050	<0.00050	<0.00050
Toluene	0.002 mg/L		<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	0.090 mg/L		<0.00050	<0.00050	<0.00050	<0.00050

** exceeds maximum average

If you have any questions regarding the above, please do not hesitate to contact me.

Yours sincerely,

LUPIN MINES INCORPORATED



Patrick Downey
President and CEO



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

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1061393-1 WATER 20-SEP-11 09:15 LUP-27-MTS-2011-09-20	L1061393-2 WATER 20-SEP-11 10:30 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 Description Sampled Date Sampled Time Client ID		L1061393-1 WATER 20-SEP-11 09:15 LUP-27-MTS-2011-09-20	L1061393-2 WATER 20-SEP-11 10:30 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 transferred 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
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VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA
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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 ww - 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.



Report To			Report Format / Distribution			Service Request: (Rush subject to availability - Contact ALS to confirm TAT)											
Company: <u>SRK Consulting</u>			Standard: <input checked="" type="checkbox"/> Other (specify):			<input checked="" type="checkbox"/> Regular (Standard Turnaround Times - Business Days)											
Contact: <u>Arlene Laudrum</u>			Select: PDF <input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> Digital <input type="checkbox"/> Fax			Priority (2-4 Business Days) - 50% surcharge - Contact ALS to confirm TAT											
Address: <u>5204, 50th Avenue, Suite 202</u>			Email 1: <u>alaudrum@srk.com</u>			Emergency (1-2 Business Days) - 100% Surcharge - Contact ALS to confirm TAT											
Phone: <u>867-766-6332</u> Fax: <u>866-380-3458</u>			Email 2: <u>lupinoperations@gmail.com</u>			Same Day or Weekend Emergency - Contact ALS to confirm TAT											
Invoice To			Client / Project Information			Analysis Request											
Same as Report? (circle) Yes or No (if No, provide details)			Job #: <u>ICE015-000</u>			(Indicate Filtered or Preserved, F/P)											
Copy of Invoice with Report? (circle) Yes or No			PO / AFE: <u>LUPIN</u>														
Company: <u>SRK Consulting</u>			LSD:														
Contact: <u>Matthew Lai</u>			Quote #:														
Address: <u>2200-1066</u>			ALS Contact: <u>Brad</u>														
Phone: <u>604 681 4196</u> Fax:			Sampler: <u>Arlene</u>														
Lab Work Order # (lab use only)																	
Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type											Number of Containers		
	<u>LUP-27-MTS-2011-09-20</u>	<u>20-09-11</u>	<u>9:15</u>	<u>water</u>	<u>BETX</u>	<u>F2-F4</u>	<u>hardness</u>	<u>pH, alkalinity</u>	<u>TSS</u>	<u>Total oil + grease</u>	<u>Total ammonia</u>	<u>Total iron</u>	<u>Total metals</u>	<u>Nitrate / Nitrite</u>	<u>(T) phosphorus + P of the phosphorus</u>	<u>BOD</u>	<u>9</u>
	<u>LUP-14-2011-09-20</u>	<u>20-09-11</u>	<u>10:30</u>	<u>water</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>11</u>



Special Instructions / Regulations / Hazardous Details

CCME - Commercial

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)			SHIPMENT VERIFICATION (lab use only)				
Released by: <u>Arlene</u>	Date: <u>20/09/11</u>	Time: <u>12:30</u>	Received by: <u>Brad</u>	Date: <u>20-09-11</u>	Time: <u>5:10 p</u>	Temperature: <u>8.6 °C</u>	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF



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

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1064676-1 WATER 27-SEP-11 15:40 LUP-14-2011-09-27				
Grouping	Analyte					
WATER						
Physical Tests	Hardness (as CaCO ₃) (mg/L)	94.1				
	pH (pH)	7.61				
	Total Suspended Solids (mg/L)	<3.0				
Anions and Nutrients	Alkalinity, Total (as CaCO ₃) (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 Description Sampled Date Sampled Time Client ID		L1064676-1 WATER 27-SEP-11 15:40 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 transferred 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 ww - 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.

[illegible]



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

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ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1044432-1 WATER 14-AUG-11 15:30 MTS-2011-08	L1044432-2 WATER 14-AUG-11 15:30 PPTS-2011-08	L1044432-3 WATER 14-AUG-11 15:30 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
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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
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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 transferred 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.			

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