VANCOUVER SCHOOL BOARD
Maintenance and Construction
1549 Clark Drive
Vancouver BC V5L 3L4
ATTN: Stephen Thomas

Date: 03-JUN-19
PO No.: 1517879
WO No.: L2281687
LSD:
Project Ref: CAPTAIN JAMES COOK ELEMENTARY
Sample ID: RM 107
Sampled By: Chris Carrell
Date Collected: 29-MAY-19
Lab Sample ID: L2281687-1
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals						
Lead (Pb)-Total	0.00308		mg/L	0.005		01-JUN-19

CDWQG = Health Canada Guideline Limits updated MAY 2018

* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit.
* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Joanne Lee
Account Manager

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Maintenance and Construction
1549 Clark Drive
Vancouver BC V5L 3L4
ATTN: Stephen Thomas

Date: 03-JUN-19
PO No.: 1517879
WO No.: L2281687
LSD:
Project Ref: CAPTAIN JAMES COOK ELEMENTARY
Sample ID: RM 101
Sampled By: Chris Carrell
Date Collected: 29-MAY-19
Lab Sample ID: L2281687-2
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals						
Lead (Pb)-Total	0.000066		mg/L	0.005		01-JUN-19

CDWQG = Health Canada Guideline Limits updated **MAY 2018**

* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit.
* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Joanne Lee
Account Manager

NOT IN SERVICE

Date: 03-JUN-19
PO No.: 1517879
WO No.: L2281687
LSD:
Project Ref: CAPTAIN JAMES COOK ELEMENTARY
Sample ID: RM 103
Sampled By: Chris Carrell
Date Collected: 29-MAY-19
Lab Sample ID: L2281687-3
Matrix: Water

VANCOUVER SCHOOL BOARD
Maintenance and Construction
1549 Clark Drive
Vancouver BC V5L 3L4
ATTN: Stephen Thomas

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals						
Lead (Pb)-Total	0.000144		mg/L	0.005		01-JUN-19

CDWQG = Health Canada Guideline Limits updated **MAY 2018**

* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit.
* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Joanne Lee
Account Manager

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Vancouver BC V5L 3L4
ATTN: Stephen Thomas

Date: 03-JUN-19
PO No.: 1517879
WO No.: L2281687
LSD:
Project Ref: CAPTAIN JAMES COOK ELEMENTARY
Sample ID: RM 113R
Sampled By: Chris Carrell
Date Collected: 29-MAY-19
Lab Sample ID: L2281687-4
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals						
Lead (Pb)-Total	0.000070		mg/L	0.005		01-JUN-19

CDWQG = Health Canada Guideline Limits updated **MAY 2018**

* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit.
* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Joanne Lee
Account Manager

VANCOUVER SCHOOL BOARD
Maintenance and Construction
1549 Clark Drive
Vancouver BC V5L 3L4
ATTN: Stephen Thomas

Date: 03-JUN-19
PO No.: 1517879
WO No.: L2281687
LSD:
Project Ref: CAPTAIN JAMES COOK ELEMENTARY
Sample ID: RM 116
Sampled By: Chris Carrell
Date Collected: 29-MAY-19
Lab Sample ID: L2281687-5
Matrix: Water

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals						
Lead (Pb)-Total	0.104		mg/L	0.005		01-JUN-19

CDWQG = Health Canada Guideline Limits updated MAY 2018

* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit.
* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

Approved by

Joanne Lee
Account Manager

Date: 03-JUN-19
PO No.: 1517879
WO No.: L2281687
LSD:
Project Ref: CAPTAIN JAMES COOK ELEMENTARY
Sample ID: RM 128
Sampled By: Chris Carrell
Date Collected: 29-MAY-19
Lab Sample ID: L2281687-6
Matrix: Water

VANCOUVER SCHOOL BOARD
Maintenance and Construction
1549 Clark Drive
Vancouver BC V5L 3L4
ATTN: Stephen Thomas

Test Description	Result	Qualifier	Units of Measure	CDWQG MAC	Aesthetic Objective	Date Analyzed
Total Metals						
Lead (Pb)-Total	0.0192		mg/L	0.005		01-JUN-19

CDWQG = Health Canada Guideline Limits updated MAY 2018

* CDWQG for Nitrate+Nitrite-N is the limit for nitrate only. If present as Nitrate then the limit is 10mg/L < or N.D. = less than detection limit.
* Turbidity guideline based on membrane filtration. For guidelines on conventional treatment and slow sand or diatomaceous earth filtration please see Summary Table of Guidelines for Canadian Drinking Water Quality
- A blank entry designates no known limit.
- A shaded value in the Results column exceeds CDWQG MAC and/ or Aesthetic Objective.

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Joanne Lee
Account Manager

Guidelines & Objectives

Health Canada MAC Health Related Criteria Limits

Nitrate/Nitrite-N*	Criteria limit is 10 mg/L (1.0 mg/L if present as all Nitrite-N). High concentrations may contribute to blue baby syndrome in infants.
Lead*	A cumulative body poison, uncommon in naturally occurring hard waters.
Fluoride*	Present in fluoridated water supplies at 0.8 mg/L to reduce dental caries. Elevated levels causes fluorosis (mottling of teeth).
Total Coliforms*	Criteria is 0 CFU/100mL. Adverse health effects.
E. Coli*	Criteria is 0 CFU/100 mL. Certain E. Coli bacteria can be life threatening.

*Health Canada Canadian Drinking Water Quality Guidelines (MAC limit)

Aesthetic Objective Concentration Levels

Alkalinity	Acid neutralizing capacity. Usually a measure of carbonate and bicarbonates and calculated and reported as calcium carbonate.
Balance	Quality control parameter ratioing cations to anions
Bicarbonate	See Alkalinity. Report as the anion HCO3-1
Carbonate	See Alkalinity. Reported at the anion CO3-2
Calcium	See Hardness. Common major cation of water chemistry.
Chloride	Common major anion of water chemistry.
Conductance	Physical test measuring water salinity (dissolved ions or solids)
Hardness	Classical measure or capacity of water to precipitate soap (chiefly calcium and magnesium ions). Causes scaling tendency in water if carbonates/bicarbonates are present (if >200 mg/L). For drinking water purposes waters with results <200 mg/L are considered acceptable, results >200 mg/L are considered poor but can be tolerated. Results >500 mg/L are unacceptable.
Hydroxide	See alkalinity
Magnesium	See hardness. Common major cation of water chemistry. Elevated levels (>125 mg/L) may exert a cathartic or diuretic action.
pH	Measure of water acidity/alkalinity. Normal range is 7.0-8.5.
Potassium	Common major cation of water chemistry.
Sodium	Common major cation of water chemistry. Measure of salinity (saltiness).
Sulphate	Common major anion of water chemistry. Elevated levels may exert a cathartic or diuretic action.
Total Dissolved Solids	A measure of water salinity.
Iron	Causes staining to laundry and porcelain and astringent taste. Oxidizes to red-brown precipitate on exposure to air.
Manganese	Elevated levels may cause staining of laundry and porcelain.
Heterotrophic Plate Count	Criteria is 500 cfu/mL Measure of heterotrophic bacteria present.

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

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2281687-COFC

COC Number: 17 - 765839

Page of

Report To	Contact and company name below will appear on the final report
Company:	Vancouver School Board
Contact:	Stephen Thomas
Phone:	604 - 713 - 5637
	Company address below will appear on the final report
Street:	1549 Clark Dr.
City/Province:	Vancouver, BC
Postal Code:	

Report Format / Distribution	
Select Report Format:	[X] PDF [ ] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[X] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	SSThomas@vsb.bc.ca
Email 2	
Email 3	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Regular [R]	[X] Standard TAT if received by 3 pm - business days - no surcharges apply
PRIORITY (Business Days) 4 day [P4-20%]	[ ]
3 day [P3-25%]	[ ]
2 day [P2-50%]	[ ]
EMERGENCY 1 Business day [E - 100%]	[ ]
Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]	[ ]
Date and Time Required for all E&P TATs:	dd-mmm-yy hh:mm
For tests that can not be performed according to the service level selected, you will be contacted.	

Invoice To		
	Same as Report To	[X] YES [ ] NO
	Copy of Invoice with Report	[ ] YES [ ] NO
Company:		
Contact:		

Invoice Distribution	
Select Invoice Distribution:	[X] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	SSThomas@vsb.bc.ca
Email 2	

Project Information	
ALS Account # / Quote #:	
Job #:	Captain James Cook Elementary
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler: Chris Carrell

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	LEAD	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	RM 107	29-May-19	12:57	water				
	RM 101	29-May-19	01:00	water				
	RM 103	29-May-19	12:53	water				
	RM 113 R	29-May-19	01:04	water				
	RM 116	29-May-19	01:20	water				
	RM 128	29-May-19	01:29	water				

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

No preservatives added

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs [X]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No	[ ]
Cooling Initiated [X]					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				18			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: SP	Date: 29/5/19	Time: 2:55pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.