CARO
ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

REPORTED TO	Royal Bridge High School Unit 301 - 1123 Westwood Street Coquitlam, BC V3B 0M1		
ATTENTION	Jim Ion	**WORK ORDER**	7110828
PO NUMBER		**RECEIVED / TEMP**	2017-11-08 08:00 / 6°C
PROJECT	Lead in Water Testing	**REPORTED**	2017-11-17 09:05
PROJECT INFO		**COC NUMBER**	B53659

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at ***teamcaro@caro.ca***

Authorized By:

Team CARO
Client Service Representative

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TEST RESULTS

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Female Washroom (7110828-01) | Matrix: Water | Sampled: 2017-11-08 07:30						
Total Metals						
Lead, total	**0.00421**	MAC = 0.01	0.00020	mg/L	2017-11-15	
Male Washroom (7110828-02) | Matrix: Water | Sampled: 2017-11-08 07:35						
Total Metals						
Lead, total	**0.00183**	MAC = 0.01	0.00020	mg/L	2017-11-15	
Handicap Washroom (7110828-03) | Matrix: Water | Sampled: 2017-11-08 07:40						
Total Metals						
Lead, total	**0.00252**	MAC = 0.01	0.00020	mg/L	2017-11-15	

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APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Royal Bridge High School	**WORK ORDER**	7110828
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Analysis Description	Method Ref.	Technique	Location
Total Metals in Water	EPA 200.2* / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, Feb 2017)

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

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APPENDIX 2: QUALITY CONTROL RESULTS

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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Notes
Total Metals, Batch B7K1097										
Blank (B7K1097-BLK1)				Prepared: 2017-11-15, Analyzed: 2017-11-15						
Lead, total	< 0.00020	0.00020	mg/L							
LCS (B7K1097-BS1)				Prepared: 2017-11-15, Analyzed: 2017-11-15						
Lead, total	0.0193	0.00020	mg/L	0.0200		96	80-120			
Reference (B7K1097-SRM1)				Prepared: 2017-11-15, Analyzed: 2017-11-15						
Lead, total	0.198	0.00020	mg/L	0.204		97	90-110			