



CERTIFICATE OF ANALYSIS

REPORTED TO Parksville, City of
P O Box 1390, 100 Jensen Avenue East
Parksville, BC V9P 2H3

ATTENTION Barbara Silenieks

PO NUMBER 003088

PROJECT 361341 - THM Quarterly (Island Health)

PROJECT INFO

WORK ORDER 8080410

RECEIVED / TEMP 2018-08-02 08:30 / 10°C

REPORTED 2018-08-08 12:11

COC NUMBER B65091

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.

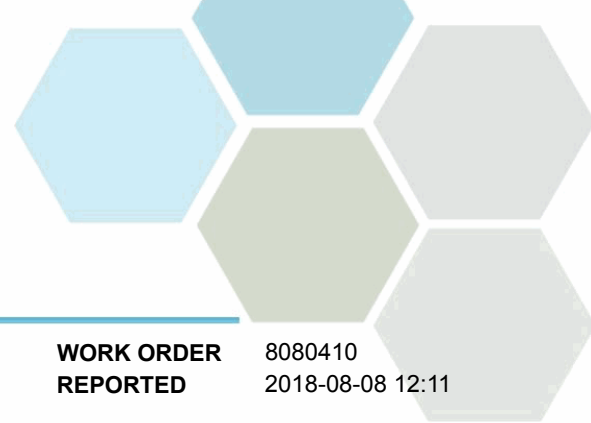
If you have any questions or concerns, please contact me at hmaleki@caro.ca

Authorized By:

Helen Maleki, Dipl T
Client Service Representative

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TEST RESULTS

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361341 - THM Quarterly (Island Health)

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Community Park (8080410-01) Matrix: Water Sampled: 2018-08-01 10:40						
<i>Calculated Parameters</i>						
Total Trihalomethanes	0.0158	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0024	N/A	0.0010	mg/L	2018-08-06	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2018-08-06	
Chloroform	0.0133	N/A	0.0010	mg/L	2018-08-06	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2018-08-06	
Surrogate: Toluene-d8	76		70-130	%	2018-08-06	
Surrogate: 4-Bromofluorobenzene	90		70-130	%	2018-08-06	

Temple (8080410-02) | Matrix: Water | Sampled: 2018-08-01 10:55

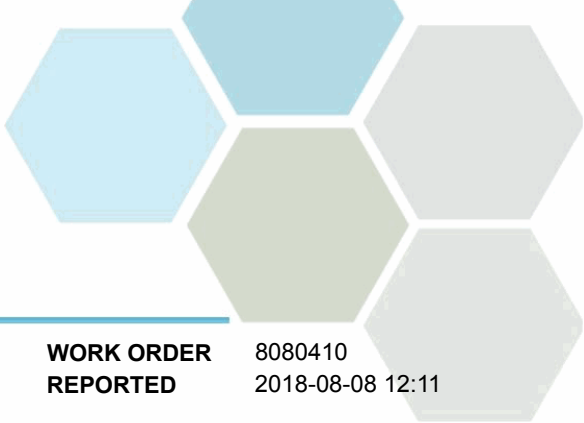
<i>Calculated Parameters</i>						
Total Trihalomethanes	0.00869	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0020	N/A	0.0010	mg/L	2018-08-06	
Bromoform	0.0016	N/A	0.0010	mg/L	2018-08-06	
Chloroform	0.0023	N/A	0.0010	mg/L	2018-08-06	
Dibromochloromethane	0.0029	N/A	0.0010	mg/L	2018-08-06	
Surrogate: Toluene-d8	75		70-130	%	2018-08-06	
Surrogate: 4-Bromofluorobenzene	91		70-130	%	2018-08-06	

Ermineskin (8080410-03) | Matrix: Water | Sampled: 2018-08-01 11:05

<i>Calculated Parameters</i>						
Total Trihalomethanes	< 0.00400	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2018-08-06	
Bromoform	0.0011	N/A	0.0010	mg/L	2018-08-06	
Chloroform	< 0.0010	N/A	0.0010	mg/L	2018-08-06	
Dibromochloromethane	0.0016	N/A	0.0010	mg/L	2018-08-06	
Surrogate: Toluene-d8	77		70-130	%	2018-08-06	
Surrogate: 4-Bromofluorobenzene	92		70-130	%	2018-08-06	

Public Works (8080410-04) | Matrix: Water | Sampled: 2018-08-01 11:20

<i>Calculated Parameters</i>						
Total Trihalomethanes	0.0219	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0038	N/A	0.0010	mg/L	2018-08-06	

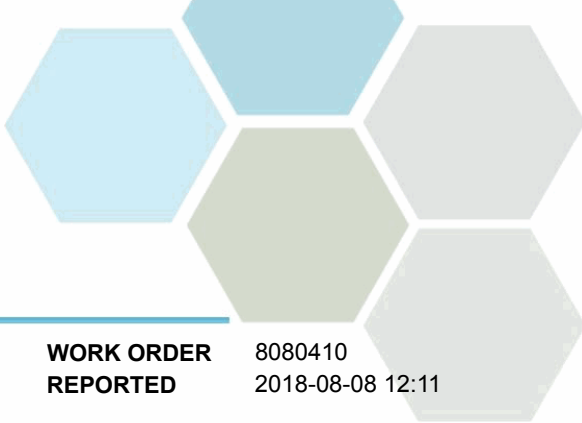


TEST RESULTS

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Public Works (8080410-04) Matrix: Water Sampled: 2018-08-01 11:20, Continued						
<i>Volatile Organic Compounds (VOC), Continued</i>						
Bromoform	< 0.0010	N/A	0.0010	mg/L	2018-08-06	
Chloroform	0.0182	N/A	0.0010	mg/L	2018-08-06	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2018-08-06	
<i>Surrogate: Toluene-d8</i>	74		70-130	%	2018-08-06	
<i>Surrogate: 4-Bromofluorobenzene</i>	83		70-130	%	2018-08-06	



APPENDIX 1: SUPPORTING INFORMATION

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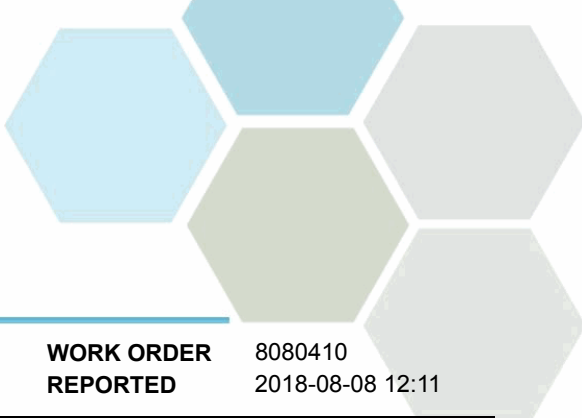
Analysis Description	Method Ref.	Technique	Location
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	Richmond

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods

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.



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	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B8H0389									
Blank (B8H0389-BLK1)			Prepared: 2018-08-06, Analyzed: 2018-08-06						
Bromodichloromethane	< 0.0010	0.0010 mg/L							
Bromoform	< 0.0010	0.0010 mg/L							
Chloroform	< 0.0010	0.0010 mg/L							
Dibromochloromethane	< 0.0010	0.0010 mg/L							
Surrogate: Toluene-d8	0.0206	mg/L	0.0262		79	70-130			
Surrogate: 4-Bromofluorobenzene	0.0212	mg/L	0.0250		85	70-130			
LCS (B8H0389-BS1)			Prepared: 2018-08-06, Analyzed: 2018-08-06						
Bromodichloromethane	0.0183	0.0010 mg/L	0.0202		91	70-130			
Bromoform	0.0168	0.0010 mg/L	0.0201		83	70-130			
Chloroform	0.0196	0.0010 mg/L	0.0202		97	70-130			
Dibromochloromethane	0.0169	0.0010 mg/L	0.0202		84	70-130			
Surrogate: Toluene-d8	0.0197	mg/L	0.0262		75	70-130			
Surrogate: 4-Bromofluorobenzene	0.0212	mg/L	0.0250		85	70-130			
Duplicate (B8H0389-DUP1)			Source: 8080410-01		Prepared: 2018-08-06, Analyzed: 2018-08-06				
Bromodichloromethane	0.0026	0.0010 mg/L		0.0024					23
Bromoform	< 0.0010	0.0010 mg/L		< 0.0010					23
Chloroform	0.0129	0.0010 mg/L		0.0133			3		22
Dibromochloromethane	< 0.0010	0.0010 mg/L		< 0.0010					28
Surrogate: Toluene-d8	0.0204	mg/L	0.0262		78	70-130			
Surrogate: 4-Bromofluorobenzene	0.0246	mg/L	0.0250		98	70-130			
Matrix Spike (B8H0389-MS1)			Source: 8080410-01		Prepared: 2018-08-06, Analyzed: 2018-08-06				
Bromodichloromethane	0.0222	0.0010 mg/L	0.0202	0.0024	98	70-130			
Bromoform	0.0191	0.0010 mg/L	0.0201	< 0.0010	95	70-130			
Chloroform	0.0323	0.0010 mg/L	0.0202	0.0133	94	70-130			
Dibromochloromethane	0.0194	0.0010 mg/L	0.0202	< 0.0010	94	70-130			
Surrogate: Toluene-d8	0.0207	mg/L	0.0262		79	70-130			
Surrogate: 4-Bromofluorobenzene	0.0252	mg/L	0.0250		101	70-130			

QC Qualifiers:

S02 Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.

