



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 003191

PROJECT 361341 - THM Quarterly (Island Health)

PROJECT INFO

WORK ORDER 8110473

RECEIVED / TEMP 2018-11-06 09:20 / 9°C

REPORTED 2018-11-14 16:21

COC NUMBER B68475

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.

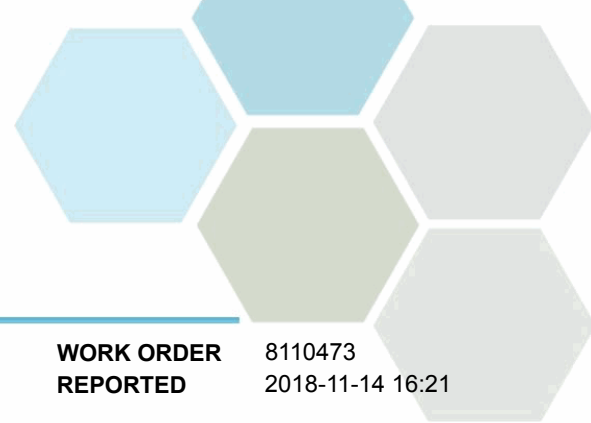
If you have any questions or concerns, please contact me at bshaw@caro.ca

Authorized By:

Bryan Shaw, Ph.D., P.Chem.
Client Service Coordinator

1-888-311-8846 | www.caro.ca

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7



TEST RESULTS

REPORTED TO PROJECT Parksville, City of
361341 - THM Quarterly (Island Health)

WORK ORDER REPORTED 8110473
2018-11-14 16:21

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Community Park (8110473-01) Matrix: Water Sampled: 2018-11-05 08:20						
<i>Calculated Parameters</i>						
Total Trihalomethanes	0.0237	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0065	N/A	0.0010	mg/L	2018-11-12	
Bromoform	0.0023	N/A	0.0010	mg/L	2018-11-12	
Chloroform	0.0082	N/A	0.0010	mg/L	2018-11-12	
Dibromochloromethane	0.0066	N/A	0.0010	mg/L	2018-11-12	
Surrogate: Toluene-d8	77		70-130	%	2018-11-12	
Surrogate: 4-Bromofluorobenzene	75		70-130	%	2018-11-12	

Temple (8110473-02) | Matrix: Water | Sampled: 2018-11-05 08:35

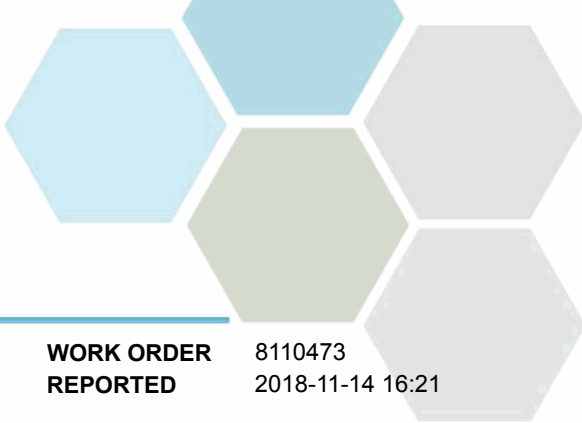
<i>Calculated Parameters</i>						
Total Trihalomethanes	0.00733	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0021	N/A	0.0010	mg/L	2018-11-12	
Bromoform	0.0017	N/A	0.0010	mg/L	2018-11-12	
Chloroform	< 0.0010	N/A	0.0010	mg/L	2018-11-12	
Dibromochloromethane	0.0036	N/A	0.0010	mg/L	2018-11-12	
Surrogate: Toluene-d8	75		70-130	%	2018-11-12	
Surrogate: 4-Bromofluorobenzene	82		70-130	%	2018-11-12	

Ermineskin (8110473-03) | Matrix: Water | Sampled: 2018-11-05 08:50

<i>Calculated Parameters</i>						
Total Trihalomethanes	0.00506	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0013	N/A	0.0010	mg/L	2018-11-12	
Bromoform	0.0014	N/A	0.0010	mg/L	2018-11-12	
Chloroform	< 0.0010	N/A	0.0010	mg/L	2018-11-12	
Dibromochloromethane	0.0024	N/A	0.0010	mg/L	2018-11-12	
Surrogate: Toluene-d8	70		70-130	%	2018-11-12	
Surrogate: 4-Bromofluorobenzene	70		70-130	%	2018-11-12	

Public Works (8110473-04) | Matrix: Water | Sampled: 2018-11-05 09:00

<i>Calculated Parameters</i>						
Total Trihalomethanes	0.0159	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0043	N/A	0.0010	mg/L	2018-11-12	

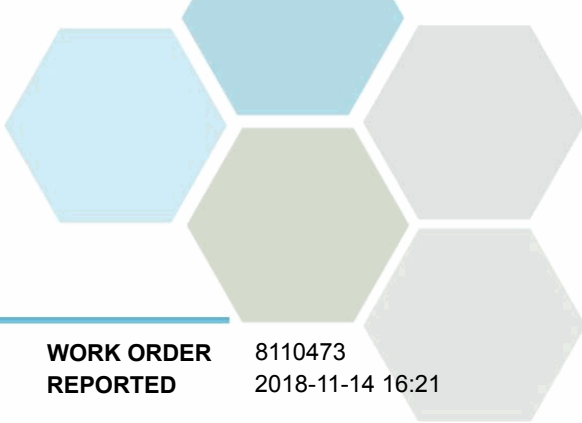


TEST RESULTS

REPORTED TO PROJECT Parksville, City of
361341 - THM Quarterly (Island Health)

WORK ORDER REPORTED 8110473
2018-11-14 16:21

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Public Works (8110473-04) Matrix: Water Sampled: 2018-11-05 09:00, Continued						
<i>Volatile Organic Compounds (VOC), Continued</i>						
Bromoform	0.0023	N/A	0.0010	mg/L	2018-11-12	
Chloroform	0.0037	N/A	0.0010	mg/L	2018-11-12	
Dibromochloromethane	0.0056	N/A	0.0010	mg/L	2018-11-12	
<i>Surrogate: Toluene-d8</i>	77		70-130	%	2018-11-12	
<i>Surrogate: 4-Bromofluorobenzene</i>	76		70-130	%	2018-11-12	



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Parksville, City of
361341 - THM Quarterly (Island Health)

WORK ORDER REPORTED 8110473
2018-11-14 16:21

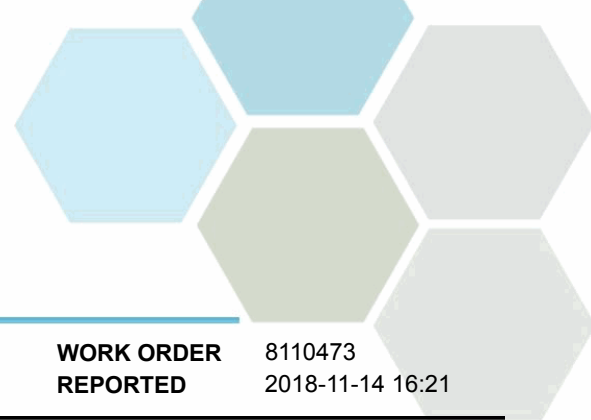
Analysis Description	Method Ref.	Technique	Location
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	Richmond

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

REPORTED TO Parksville, City of
PROJECT 361341 - THM Quarterly (Island Health)

WORK ORDER 8110473
REPORTED 2018-11-14 16:21

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 B8K0862									
Blank (B8K0862-BLK1)			Prepared: 2018-11-12, Analyzed: 2018-11-12						
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	0.0189	mg/L	0.0262		72	70-130			
Surrogate: 4-Bromofluorobenzene	0.0179	mg/L	0.0250		72	70-130			
LCS (B8K0862-BS1)			Prepared: 2018-11-12, Analyzed: 2018-11-12						
Bromodichloromethane	0.0214	0.0010 mg/L	0.0202		106	70-130			
Bromoform	0.0192	0.0010 mg/L	0.0201		95	70-130			
Chloroform	0.0215	0.0010 mg/L	0.0202		107	70-130			
Dibromochloromethane	0.0202	0.0010 mg/L	0.0202		100	70-130			
Surrogate: Toluene-d8	0.0181	mg/L	0.0262		69	70-130			S02
Surrogate: 4-Bromofluorobenzene	0.0209	mg/L	0.0250		84	70-130			
Duplicate (B8K0862-DUP1)			Source: 8110473-01		Prepared: 2018-11-12, Analyzed: 2018-11-12				
Bromodichloromethane	0.0057	0.0010 mg/L		0.0065			13		23
Bromoform	0.0021	0.0010 mg/L		0.0023					23
Chloroform	0.0072	0.0010 mg/L		0.0082			14		22
Dibromochloromethane	0.0062	0.0010 mg/L		0.0066			7		28
Surrogate: Toluene-d8	0.0193	mg/L	0.0262		74	70-130			
Surrogate: 4-Bromofluorobenzene	0.0178	mg/L	0.0250		71	70-130			
Matrix Spike (B8K0862-MS1)			Source: 8110473-01		Prepared: 2018-11-12, Analyzed: 2018-11-12				
Bromodichloromethane	0.0286	0.0010 mg/L	0.0202	0.0065	109	70-130			
Bromoform	0.0221	0.0010 mg/L	0.0201	0.0023	98	70-130			
Chloroform	0.0282	0.0010 mg/L	0.0202	0.0082	99	70-130			
Dibromochloromethane	0.0283	0.0010 mg/L	0.0202	0.0066	107	70-130			
Surrogate: Toluene-d8	0.0192	mg/L	0.0262		73	70-130			
Surrogate: 4-Bromofluorobenzene	0.0222	mg/L	0.0250		89	70-130			

QC Qualifiers:

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

