



## **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



We've Got Chemistry



Ahead of the Curve



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.

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.

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 the

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# **TEST RESULTS**

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REPORTED TO Parksville, City of PROJECT 361341 - THM Quar	terly (Island Health)			WORK ORDER REPORTED	8080410 2018-08-0	8 12:11
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifie
Community Park (8080410-01)   Matrix	: Water   Sampled: 20	018-08-01 10:40				
Calculated Parameters						
Total Trihalomethanes	0.0158	N/A	0.00400	mg/L	N/A	
Volatile Organic Compounds (VOC)						
Bromodichloromethane	0.0024	N/A	0.0010	ma/l	2018-08-06	
Bromoform	< 0.0010	N/A	0.0010		2018-08-06	
Chloroform	0.0133	N/A	0.0010		2018-08-06	
Dibromochloromethane	< 0.0010	N/A	0.0010		2018-08-06	
Surrogate: Toluene-d8	76	1071	70-130	%	2018-08-06	
Surrogate: 4-Bromofluorobenzene	90		70-130		2018-08-06	
Temple (8080410-02)   Matrix: Water   S Calculated Parameters	Sampled: 2018-08-01	10:55				
Total Trihalomethanes	0.00869	N/A	0.00400	mg/L	N/A	
Volatile Organic Compounds (VOC)						
Bromodichloromethane	0.0020	N/A	0.0010	ma/L	2018-08-06	
Bromoform	0.0016	N/A	0.0010		2018-08-06	
Chloroform	0.0023	N/A	0.0010		2018-08-06	
Dibromochloromethane	0.0029	N/A	0.0010		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: Wate  Calculated Parameters  Total Trihalomethanes	er   Sampled: 2018-08 < 0.00400	8-01 11:05 N/A	0.00400	ma/L	N/A	
Volatile Organic Compounds (VOC)	2.20 100		3.33 100	· <del>o</del> · –		
Bromodichloromethane	< 0.0010	N/A	0.0010	ma/L	2018-08-06	
Bromoform	0.0011	N/A	0.0010		2018-08-06	
Chloroform	< 0.0011	N/A	0.0010		2018-08-06	
Dibromochloromethane	0.0016	N/A	0.0010		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: W		-08-01 11:20	10.00		2.2.20	
Calculated Parameters						
Total Trihalomethanes	0.0219	N/A	0.00400	ma/l	N/A	
	0.0219	IN/A	0.00400	mg/L	IN/A	
Volatile Organic Compounds (VOC)					0046 55 55	
Bromodichloromethane	0.0038	N/A	0.0010	mg/L	2018-08-06	



# **TEST RESULTS**

REPORTED TO Parksville, City of WORK ORDER 8080410

PROJECT 361341 - THM Quarterly (Island Health) REPORTED 2018-08-08 12:11

Analyte	Result	Guideline	RL Units	Analyzed Qualif
Public Works (8080410-04)   Matrix: Wa	ter   Sampled: 2018	-08-01 11:20, Conti	nued	
Volatile Organic Compounds (VOC), Contin	ued			
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
Dibroffiction				
Surrogate: Toluene-d8	74		<i>70-130</i> %	2018-08-06



### APPENDIX 1: SUPPORTING INFORMATION

Parksville, City of **REPORTED TO PROJECT** 

361341 - THM Quarterly (Island Health)

**WORK ORDER** REPORTED

8080410 2018-08-08 12:11

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

United States Environmental Protection Agency Test Methods **EPA** 

#### **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

8080410

**REPORTED** 2018-08-08 12:11

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	: 2018-08-0	6, Analyze	ed: 2018-0	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	: 2018-08-0	6, Analyze	ed: 2018-0	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)	Sou	ırce: 8080410-01	Prepared	: 2018-08-0	6, Analyze	ed: 2018-0	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)	Sou	ırce: 8080410-01	Prepared	: 2018-08-0	6, Analyze	ed: 2018-0	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.



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