

# **CERTIFICATE OF ANALYSIS**

REPORTED TO	Parksville, City of P O Box 1390, 100 Jensen Avenue East Parksville, BC V9P 2H3		
ATTENTION	Barbara Silenieks	WORK ORDER	8051738
PO NUMBER PROJECT PROJECT INFO	PO003011 361341 - THM Quarterly (Island Health)	RECEIVED / TEMP REPORTED COC NUMBER	2018-05-16 09:30 / 5 2018-05-28 11:44 B51816

#### 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.

We've Got Chemistry

### 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.

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

Ahead of the Curve



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Through research, regulation knowledge, and instrumentation, we are your analytical centre the for knowledge technical 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** 

### 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

Caring About Results, Obviously.



# **TEST RESULTS**

REPORTED
PROJECT

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

WORK ORDER	
REPORTED	

8051738 2018-05-28 11:44

Analyte	Result	Guideline	RL Uni	ts Analyzed	Qualifier				
Community Park (8051738-01)   Matrix: Water   Sampled: 2018-05-15 10:45									
Calculated Parameters									
Total Trihalomethanes	0.00830	N/A	0.00400 mg/	L N/A					
Volatile Organic Compounds (VOC)									
Bromodichloromethane	0.0018	N/A	0.0010 mg/	L 2018-05-25					
Bromoform	0.0011	N/A	0.0010 mg/	L 2018-05-25					
Chloroform	0.0029	N/A	0.0010 mg/	L 2018-05-25					
Dibromochloromethane	0.0025	N/A	0.0010 mg/	L 2018-05-25					
Surrogate: Toluene-d8	120		70-130 %	2018-05-25					
Surrogate: 4-Bromofluorobenzene	63		70-130 %	2018-05-25	S02				

## Temple (8051738-02) | Matrix: Water | Sampled: 2018-05-15 11:00

Calculated Parameters					
Total Trihalomethanes	0.0100	N/A	0.00400 mg/L	N/A	
Volatile Organic Compounds (VOC)					
Bromodichloromethane	0.0023	N/A	0.0010 mg/L	2018-05-25	
Bromoform	0.0011	N/A	0.0010 mg/L	2018-05-25	
Chloroform	0.0037	N/A	0.0010 mg/L	2018-05-25	
Dibromochloromethane	0.0028	N/A	0.0010 mg/L	2018-05-25	
Surrogate: Toluene-d8	120		70-130 %	2018-05-25	
Surrogate: 4-Bromofluorobenzene	63		70-130 %	2018-05-25	S02

### Ermineskin (8051738-03) | Matrix: Water | Sampled: 2018-05-15 11:10

Calculated Parameters					
Total Trihalomethanes	< 0.00400	N/A	0.00400 mg/L	N/A	
Volatile Organic Compounds (VOC)					
Bromodichloromethane	< 0.0010	N/A	0.0010 mg/L	2018-05-25	
Bromoform	< 0.0010	N/A	0.0010 mg/L	2018-05-25	
Chloroform	< 0.0010	N/A	0.0010 mg/L	2018-05-25	
Dibromochloromethane	0.0015	N/A	0.0010 mg/L	2018-05-25	
Surrogate: Toluene-d8	119		70-130 %	2018-05-25	
Surrogate: 4-Bromofluorobenzene	63		70-130 %	2018-05-25	S02

### Public Works (8051738-04) | Matrix: Water | Sampled: 2018-05-15 11:30

	Caring Abo	ut Results, Obv	viously	Paga	2 of 6
Bromodichloromethane	0.0016	N/A	0.0010 mg/L	2018-05-25	
Volatile Organic Compounds (VOC)					
Total Trihalomethanes	0.0436	N/A	0.00400 mg/L	N/A	
Calculated Parameters					



# **TEST RESULTS**

REPORTED TO PROJECT	Parksville, City of 361341 - THM Quarte	erly (Island Health)			WORK ORDER REPORTED	8051738 2018-05-2	8 11:44
Analyte		Result	Guideline	RL	Units	Analyzed	Qualifie
	54729 04)   Motrix: Mo	ter   Sampled: 2018.	05-15 11:30 Conti	inued			
ublic Works (80	51750-04)   Watrix. Wa						
Public Works (80 /olatile Organic Co	ompounds (VOC), Contin						
	,,,		N/A	0.0010	mg/L	2018-05-25	
/olatile Organic Co	,,,	ued			0	2018-05-25 2018-05-25	
<i>/olatile Organic Co</i> Bromoform	ompounds (VOC), Contin	ed < 0.0010	N/A	0.0010	mg/L		
<i>/olatile Organic Co</i> Bromoform Chloroform	ompounds (VOC), Contin	vued < 0.0010 0.0419	N/A N/A	0.0010	mg/L mg/L	2018-05-25	

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



# **APPENDIX 1: SUPPORTING INFORMATION**

REPORTED TO PROJECT	Parksville, 0 361341 - TH	City of HM Quarterly (Island Hea	llth)	WORK ORDER REPORTED	8051738 2018-05-28 11:44
Analysis Descri	ption	Method Ref.	Technique		Location
Trihalomethanes in	n Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)		Richmond
Glossary of Term	s:				
RL	Reporting Lir	nit (default)			
<	Less than the	e specified Reporting Limit	(RL) - the actual RL may be higher that	n the default RL due to	various factors
mg/L	Milligrams pe	er litre			
EPA	United States	s 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	WORK ORDER	8051738
PROJECT	361341 - THM Quarterly (Island Health)	REPORTED	2018-05-28 11:44

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	Source	% REC	REC	% RPD	RPD	Qualifier
· ···· <b>·</b> , ··			Level	Result		Limit		Limit	

#### Volatile Organic Compounds (VOC), Batch B8E2031

Blank (B8E2031-BLK1)	Prepared: 2018-05-25, Analyzed: 2018-05-25					
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	0.0300	mg/L	0.0262	115	70-130	
Surrogate: 4-Bromofluorobenzene	0.0153	mg/L	0.0250	61	70-130	S02
LCS (B8E2031-BS1)			Prepared: 2018	-05-25, Analyze	ed: 2018-05-25	
Bromodichloromethane	0.0183	0.0010 mg/L	0.0200	92	70-130	
Bromoform	0.0177	0.0010 mg/L	0.0202	87	70-130	
Chloroform	0.0185	0.0010 mg/L	0.0202	91	70-130	
Chloroform Dibromochloromethane	0.0185	0.0010 mg/L 0.0010 mg/L	0.0202	91 82	70-130	
		0		-		

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

* 8 0 5 1 7 3 8 *	<ul> <li>110-4011 Viking Way, Richmond, BC V6V 2K9 Tel: (604) 279-1499 Fax: (604) 279-1599</li> <li>102-3677 Highway 97N, Kelowna, BC V1X 5C3 Tel: (250) 765-9646 Fax: (250) 765-3893</li> <li>17225 109 Avenue NW, Edmonton, AB T5S 1H7 Tel: (780) 489-9100 Fax: (780) 489-9700</li> </ul>	RELINQUISHED BY: B. Silewieks PROJECT:	
COMPANY: City of Parksville ADDRESS: 1116 Herring Gull	INVOICE TO: SAME AS REPORT TO	THM	PROJECT INFO:
ADDRESS INC HAR SUITE	COMPANY:	TURNAROUND TIME REQUESTED:	REGULATORY APPLICATION:
ADDRESS: 116 Herning Gull	ADDRESS:	Routine: (5-7 Days) 🏹	Canadian Drinking Water Quality Guidelines Report
CONTACT:		Rush: 1 Day* 🔲 2 Day* 🦳 3 Day* Other*	5 E)
TEL/FAX:	CONTACT:	*Contact Lab To Confirm. Surcharge Ma	BC CSR     AB TIER 1     CCME     OTHER*       May Apply     AL     PL     RL     CL     IL     AW     IV
	TEL/FAX:		ANALYSES REQUESTED:
DATA FORMAT: EXCEL K WATERTRAX ESdat EQUIS BC EMS OTHER* EMAIL 1: DSileyieks@parkswile. EMAIL 2: EMAIL 3:	PO #:	- <u>-</u>	DLVED H9 inc. pH
** NEW ** If you would like to sign up for ClientConnect and/or Env		PHC	
SAMPLED BY:	X: SAMPLING: COMMENTS:	VPH	- WATER DI S - SOIL (SALI VSS 1 TD VSS
CLIENT SAMPLE ID: I Community Park V 2 Temple V 3 Ermineskin V 4 Public Works V	$\begin{array}{c c} \begin{array}{c} \underline{W} \\ $	BTEX     VPH     PHC F1       VOC     VPH     PHC F1       VOC     VPH     PHC F1       PHC     PHC F2-F4     PHC F2-F4       PHC     PHENOLS Chlorinated     Non-       PHENOLS CHLORES     ACID HERBIG       PHENOLS CHLORES     METALS - WATER PUSCOLVED	METALS - WATER DISS       METALS - WATER DISS       METALS - WATER DISS       METALS - SOIL (SALM)       PH     EC       PH       PH    <
SHIPPING INSTRUCTIONS: Return Cooler(s)			
Supplies Needed: 60 Days  * OTHER I	RETENTION INSTRUCTIONS (Discarded 30 days after Report         90 Days       Longer Date (Surcharges will Apply):         NSTRUCTIONS:       COO 3011	t unless otherwise specified):	PAYMENT:         SAMPLE RECEIPT CONDITION:           CHEQUE         COOLER 1 (°C):         S.C.           CREDIT         COOLER 2 (°C):         ICE: Y           DEBIT         COOLER 3 (°C):         ICE: Y           CASH         COOLER 3 (°C):         ICE: Y           INVOICE         CUSTODY SEALS INTACT:         N