



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 003346

PROJECT 361341 - THM Quarterly (Island Health)

PROJECT INFO

WORK ORDER 9031446

RECEIVED / TEMP 2019-03-19 12:20 / 14°C

REPORTED 2019-03-29 15:08

COC NUMBER B76099

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.

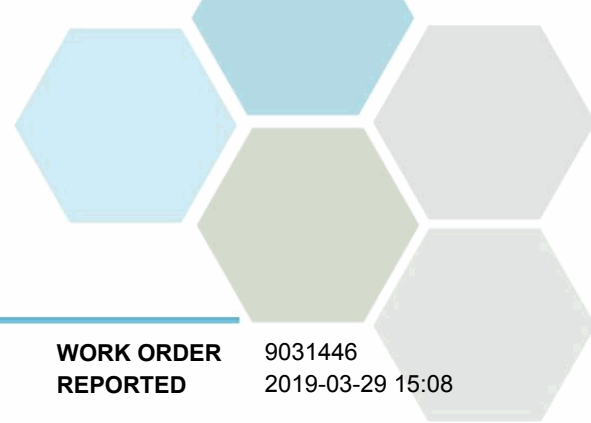
If you have any questions or concerns, please contact me at bshaw@caro.ca

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 9031446
2019-03-29 15:08

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Community Park (9031446-01) Matrix: Water Sampled: 2019-03-18 10:30						
<i>Calculated Parameters</i>						
Total Trihalomethanes	0.00691	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0018	N/A	0.0010	mg/L	2019-03-29	
Bromoform	0.0012	N/A	0.0010	mg/L	2019-03-29	
Chloroform	0.0014	N/A	0.0010	mg/L	2019-03-29	
Dibromochloromethane	0.0025	N/A	0.0010	mg/L	2019-03-29	
Surrogate: Toluene-d8	95		70-130	%	2019-03-29	
Surrogate: 4-Bromofluorobenzene	101		70-130	%	2019-03-29	

Temple (9031446-02) | Matrix: Water | Sampled: 2019-03-18 10:55

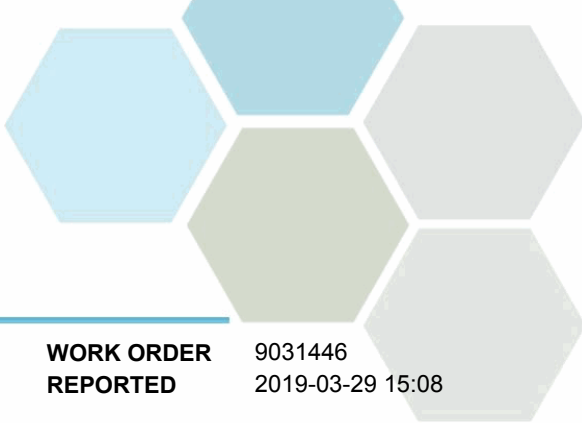
<i>Calculated Parameters</i>						
Total Trihalomethanes	0.00636	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0016	N/A	0.0010	mg/L	2019-03-29	
Bromoform	0.0012	N/A	0.0010	mg/L	2019-03-29	
Chloroform	0.0011	N/A	0.0010	mg/L	2019-03-29	
Dibromochloromethane	0.0024	N/A	0.0010	mg/L	2019-03-29	
Surrogate: Toluene-d8	98		70-130	%	2019-03-29	
Surrogate: 4-Bromofluorobenzene	102		70-130	%	2019-03-29	

Ermineskin (9031446-03) | Matrix: Water | Sampled: 2019-03-18 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	0.0012	N/A	0.0010	mg/L	2019-03-29	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2019-03-29	
Chloroform	< 0.0010	N/A	0.0010	mg/L	2019-03-29	
Dibromochloromethane	0.0019	N/A	0.0010	mg/L	2019-03-29	
Surrogate: Toluene-d8	95		70-130	%	2019-03-29	
Surrogate: 4-Bromofluorobenzene	100		70-130	%	2019-03-29	

Public Works (9031446-04) | Matrix: Water | Sampled: 2019-03-18 11:25

<i>Calculated Parameters</i>						
Total Trihalomethanes	0.00761	N/A	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	0.0021	N/A	0.0010	mg/L	2019-03-29	

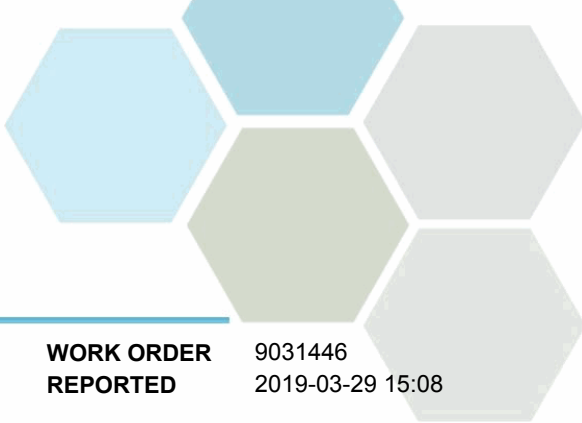


TEST RESULTS

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

WORK ORDER REPORTED 9031446
2019-03-29 15:08

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Public Works (9031446-04) Matrix: Water Sampled: 2019-03-18 11:25, Continued						
<i>Volatile Organic Compounds (VOC), Continued</i>						
Bromoform	0.0013	N/A	0.0010	mg/L	2019-03-29	
Chloroform	0.0014	N/A	0.0010	mg/L	2019-03-29	
Dibromochloromethane	0.0028	N/A	0.0010	mg/L	2019-03-29	
<i>Surrogate: Toluene-d8</i>	89		70-130	%	2019-03-29	
<i>Surrogate: 4-Bromofluorobenzene</i>	98		70-130	%	2019-03-29	



APPENDIX 1: SUPPORTING INFORMATION

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

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2019-03-29 15:08

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

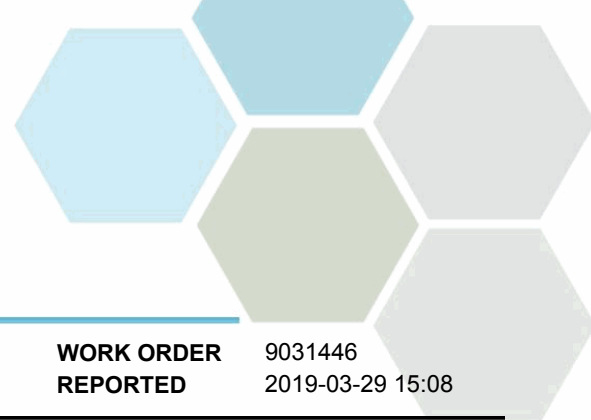
Glossary of Terms:

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: bshaw@caro.ca



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO Parksville, City of
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REPORTED 2019-03-29 15:08

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:

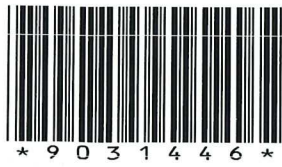
- **Method Blank (Blk):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected 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 B9C2036									
Blank (B9C2036-BLK1)			Prepared: 2019-03-29, Analyzed: 2019-03-29						
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	0.0285	mg/L	0.0262		109	70-130			
Surrogate: 4-Bromofluorobenzene	0.0368	mg/L	0.0250		147	70-130			S02
LCS (B9C2036-BS1)			Prepared: 2019-03-29, Analyzed: 2019-03-29						
Bromodichloromethane	0.0203	0.0010 mg/L	0.0202		101	70-130			
Bromoform	0.0194	0.0010 mg/L	0.0201		97	70-130			
Chloroform	0.0210	0.0010 mg/L	0.0201		105	70-130			
Dibromochloromethane	0.0193	0.0010 mg/L	0.0202		96	70-130			
Surrogate: Toluene-d8	0.0221	mg/L	0.0262		84	70-130			
Surrogate: 4-Bromofluorobenzene	0.0229	mg/L	0.0250		91	70-130			
Duplicate (B9C2036-DUP1)			Source: 9031446-01		Prepared: 2019-03-29, Analyzed: 2019-03-29				
Bromodichloromethane	0.0019	0.0010 mg/L		0.0018					23
Bromoform	0.0012	0.0010 mg/L		0.0012					23
Chloroform	0.0014	0.0010 mg/L		0.0014					22
Dibromochloromethane	0.0026	0.0010 mg/L		0.0025					28
Surrogate: Toluene-d8	0.0253	mg/L	0.0262		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0255	mg/L	0.0250		102	70-130			
Matrix Spike (B9C2036-MS1)			Source: 9031446-01		Prepared: 2019-03-29, Analyzed: 2019-03-29				
Bromodichloromethane	0.0234	0.0010 mg/L	0.0202	0.0018	106	70-130			
Bromoform	0.0205	0.0010 mg/L	0.0201	0.0012	96	70-130			
Chloroform	0.0239	0.0010 mg/L	0.0201	0.0014	112	70-130			
Dibromochloromethane	0.0226	0.0010 mg/L	0.0202	0.0025	100	70-130			
Surrogate: Toluene-d8	0.0236	mg/L	0.0262		90	70-130			
Surrogate: 4-Bromofluorobenzene	0.0246	mg/L	0.0250		98	70-130			

QC Qualifiers:

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



11-8846

BC V6V 2K9
BC V1X 5C3
AB T5S 1H7
BC V5G 4X4

CHAIN OF CUSTODY RECORD COC# B 76099 PAGE OF 6

RELINQUISHED BY:
Barbara Sileniek

DATE: March 18
TIME: 11:35

RECEIVED BY:
PORO TC

DATE: 03/18
TIME: 12:20

REPORT TO:
COMPANY: City of Parksville
ADDRESS: 1116 Herring Gull Way
CONTACT: Barb Sileniek
TEL/FAX: 250 951-2489
DELIVERY METHOD: EMAIL ONLINE OTHER*
DATA FORMAT: EXCEL WATERTRAX ESdat
 EQuis BC EMS OTHER*
EMAIL 1: bsilenieks@parksville.ca
EMAIL 2:
EMAIL 3:

INVOICE TO: SAME AS REPORT TO
COMPANY:
ADDRESS:
CONTACT:
TEL/FAX:
DELIVERY METHOD: EMAIL ONLINE OTHER*
EMAIL 1:
EMAIL 2:
EMAIL 3:
PO #:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days)
Rush: 1 Day* 2 Day* 3 Day*
Other*

REGULATORY APPLICATION:
Canadian Drinking Water Quality BC WQG BC HWR
BC CSR Soil: WL AL PL RL-LD RL-HD CL
BC CSR Water: AW IW LW DW
CCME: Other:

*Contact Lab To Confirm. Surcharge May Apply

PROJECT NUMBER / INFO:
A: Biohazard D: Asbestos G: Strong Odour
B: Cyanide E: Heavy Metals H: High Contamination
C: PCBs F: Flammable I: Other (please specify*)

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	MATRIX:	SAMPLING:	COMMENTS:	BTEX	VPH	VPH	PHC F1	PHC F2-F4	PAH	L/HEPH	PHENOLS Chlorinated	Non-Chlor.	PCB	GLYCOLS	HAA	THM	PESTICIDES	ACID HERBICIDES	METALS - WATER TOTAL	Hg	METALS - WATER DISSOLVED	Hg	METALS - SOIL (SALM)	inc. pH	pH	EC	ALK	ANIONS	TSS	VSS	TDS	BOD	COD	TOG	MOG	TN	NH3	TKN	FECAL COLIFORMS	HPC	TOTAL COLIFORMS	E. coli	ESSENTIAL DRINKING WATER PACKAGE	ASBESTOS	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)		
CLIENT SAMPLE ID:	DRINKING WATER	OTHER WATER	SOIL	OTHER	CONTAINER QTY	DATE	TIME	CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)																																					
Community Park	<input checked="" type="checkbox"/>					2019-03-18	10:30						<input checked="" type="checkbox"/>																																			
Temple	<input checked="" type="checkbox"/>					2019-03-18	10:55						<input checked="" type="checkbox"/>																																			
Ermineskin	<input checked="" type="checkbox"/>					2019-03-18	11:05						<input checked="" type="checkbox"/>																																			
Public Works	<input checked="" type="checkbox"/>					2019-03-18	11:25						<input checked="" type="checkbox"/>																																			

SHIPPING INSTRUCTIONS: Return Cooler(s)
Supplies Needed:

SAMPLE RETENTION: 30 Days (default)
60 Days 90 Days
Other (surcharges will apply):

* OTHER INSTRUCTIONS:
1x C22
2x C15
PO 003346
If you would like to talk to a real live Scientist about your project requirements, please check here:

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 13.6 ICE: Y N
COOLER 2 (°C): _____ ICE: Y N
COOLER 3 (°C): _____ ICE: Y N
CUSTODY SEALS INTACT: NA Y N