

Your C.O.C. #: G114268

Attention: Larry Crawford

Arrowsmith Water Management
PO Box 96
Errington, BC
Canada V0R 1V0

Report Date: 2018/10/30

Report #: R2643019

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B893409

Received: 2018/10/24, 16:20

Sample Matrix: Water
Samples Received: 1

Analyses	Date		Laboratory Method	Analytical Method
	Quantity	Date Extracted		
Chloride by Automated Colourimetry (1)	1	N/A	2018/10/29 BBY6SOP-00011	SM 22 4500-Cl- E m
Conductance - water (1)	1	N/A	2018/10/29 BBY6SOP-00026	SM 22 2510 B m
Total Dissolved Solids (Filt. Residue) (1)	1	2018/10/26	2018/10/30 BBY6SOP-00033	SM 23 2540 C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

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Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
BC Env Customer Service, BC Environmental Customer Service
Email: Enviro.CS.BC@maxxam.ca
Phone# (250) 338 7786

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This report has been generated and distributed using a secure automated process.

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Arrowsmith Water Management

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID			UQ0130		
Sampling Date			2018/10/24		
COC Number			G114268		
	UNITS	AO	DCLTA - 43627 - WELL WATER	RDL	QC Batch
Anions					
Dissolved Chloride (Cl)	mg/L	250	55	1.0	9205432
Physical Properties					
Conductivity	uS/cm	-	443	2.0	9205686
Physical Properties					
Total Dissolved Solids	mg/L	500	246	10	9202940
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	15.0°C
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AO: The guidelines that have been included in this report have been taken from the Canadian Drinking Water Quality Summary Table, February 2017.

Criteria A = Maximum Acceptable Concentration (MAC) / Criteria B = Aesthetic Objectives (AO) / Criteria C = Operational Guidance Values (OG)
It is recommended to consult these guidelines when interpreting your data since there are non-numerical guidelines that are not included on this report.

Turbidity Guidelines:

1. Chemically assisted filtration: less than or equal to 0.3 NTU in 95% of the measurements or 95% of the time each month. Shall not exceed 1.0 NTU at any time.
2. Slow sand / diatomaceous earth filtration: less than or equal to 1.0 NTU in 95% of the measurements or 95% of the time each month. Shall not exceed 3.0 NTU at any time.
3. Membrane filtration: less than or equal to 0.1 NTU in 99% of the measurements made or at least 99% of the time each calendar month. Shall not exceed 0.3 NTU at any time.
4. To ensure effectiveness of disinfection and for good operation of the distribution system, it is recommended that water entering the distribution system have turbidity levels of 1.0 NTU or less.

Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

Arrowsmith Water Management

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9202940	Total Dissolved Solids	2018/10/30	100	80 - 120	95	80 - 120	<10	mg/L	5.4	20
9205432	Dissolved Chloride (Cl)	2018/10/29	NC	80 - 120	105	80 - 120	<1.0	mg/L		
9205686	Conductivity	2018/10/29			100	80 - 120	<2.0	uS/cm	0.75	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Ph.D., P.Chem., Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CHAIN OF CUSTODY RECORD

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

BBY FCD-00077/05

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Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: ARROWSMITH WATER MGT	Company Name: _____	Quotation #: _____	<input type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name: LARRY	Contact Name: _____	P.O. #/ A/F#: _____	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: BOX 96 ERINGTON BC PC: V0R 1V0	Address: _____ PC: _____	Project #: _____	Rush TAT (Surcharges will be applied)
Phone: 250-954-2005	Phone: _____	Site Location: _____	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Email: LARRY@ARROWSMITHWATERMGT.COM	Email: _____	Site #: _____	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Sampled By: _____			Date Required: _____

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)	VOC/MPH <input type="checkbox"/> TEH <input type="checkbox"/> LEPA/HEPA <input type="checkbox"/> P2-E4 <input type="checkbox"/> Pressured? <input type="checkbox"/> Preserved? BTEX/MPH <input type="checkbox"/> MTBE <input type="checkbox"/> EPH <input type="checkbox"/> PNH <input type="checkbox"/> BTEX/F1 <input type="checkbox"/> F2-E4 <input type="checkbox"/> Filtered? <input type="checkbox"/> Filtered? Dissolved Metals <input type="checkbox"/> Field Preserved? <input type="checkbox"/> Field Preserved? Dissolved Mercury <input type="checkbox"/> Chloride <input type="checkbox"/> Sulphate <input type="checkbox"/> COD <input type="checkbox"/> Total Metals <input type="checkbox"/> Fluoride <input type="checkbox"/> BOD <input type="checkbox"/> Conductivity <input type="checkbox"/> Ammonia <input type="checkbox"/> Total Mercury <input type="checkbox"/> TSS <input type="checkbox"/> pH <input type="checkbox"/> Nitrate <input type="checkbox"/>	<input type="checkbox"/>

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEX/MPH	EPH	PNH	CCME-FHC	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrate	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1 DCLTA-43627		18/10/24		WELL WATER									<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
<i>L. Crawford</i> L. CRAWFORD	2018/10/24	16:20	<i>Michael Wenschel</i>	2018/10/24	16:20

24-Oct-18 16:20
 BC Env Customer Service

B893409
 MVS